stonebranch

Universal Controller 6.9.x

Tasks

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Universal Tasks

Universal Tasks

- Overview
- Creating a Universal Task
- Setting Up Universal Templates and Tasks

Universal Templates

- Overview
- Creating a Universal Template
- Creating Universal Template Fields
- Creating Universal Template Field Choices

The information on these pages also is located in the Universal Controller 6.9.x Tasks.pdf.

Universal Tasks Overview

- Overview
- Universal Task User-Defined Fields
- Setting Up Universal Templates and Tasks

Overview

Universal Task allows Universal Controller users to implement task types that are specific to their own in-house applications, utilities, or third-party vendor applications.

In cases where you are using a generic script with a Windows or Linux/Unix Universal Agent-based task, you now can create a customized Universal Task Details that encapsulates the specific input needed for that command or script.

Universal Tasks are created for specific Universal Task types, which are based on Universal Templates. When a Universal Template is created, Universal Controller creates a corresponding Universal Task type - **<template name> Tasks** - under the Universal Tasks folder in the Automation Center navigation pane.

Note

The Universal Tasks folder appears in the Automation Center navigation pane only when both of the following have occurred:

- A Universal Template has been created and one or more fields have been defined for the template.
- The Automation Center navigation pane has been refreshed.

Each Universal Template contains user-defined fields, to which the Controller assigns a variable to be used in the Universal Template script. The Controller also automatically adds these fields to the Details of all Universal Tasks created for the Universal Task type based on that Universal Template. When a Universal Task is run, it executes the script in the Universal Template and the variables in the script are resolved to the values of their matching fields in the Universal Task instance.

In this way, you can execute the same script from different tasks and have the script variables resolve to different values.

If you want to change the script, including the adding or removing variables, you only have to change it in the Universal Template.

Universal Task User-Defined Fields

Unable to render {include} The included page could not be found.

Setting Up Universal Templates and Tasks

Step 1	Create a Universal Template, which includes selecting the type of Agent(s) on which Universal Tasks based on this Universal Template can be run, and a variable prefix used for script variables that you want resolved when a Universal Task executes the script in this Universal Template.
Step 2	Enter a script in the Universal Template that all Universal Tasks based on this Universal Template will execute when they are run.
Step 3	After you have entered/selected any other desired values in the Universal Template Details, save the Universal Template.

Step 4	For each parameter in the script that you want to replace with a variable, create a Universal Template Field of an appropriate Field type. The Controller automatically assigns a variable (format: `ops_<Variable Prefix>_<Field Name>`) to each Field, using the variable prefix that you specified in Step 1, and - in the Details of all Universal Tasks based on this Universal Template - will place fields that match these Universal Template Fields (see Step 7).
Step 5	Replace the appropriate parameters in the script with the system-assigned variables.
Step 6	Update the Universal Template. Now that the Universal Template has one or more defined Fields, the Controller creates a Universal Task type for it and adds the Universal Task type to the Automation Center navigation pane. (You must refresh the Automation Center navigation pane in order to see the new Universal Task type.
Step 7	Create a Universal Task for that Universal Task type. The Universal Task Details will contain fields that match the Fields you created in the Universal Template (Step 4) for that Universal Task type.
Step 8	Enter/change values in the Universal Task fields that match the Universal Template Fields, based on how you want their matching variables in the script to be resolved.
Step 9	Run the task, which executes the script. The variables in the script are resolved to the values of their matching fields in the Universal Task.

Creating a Universal Task

- Before You Begin
- Built-In Variables
- Creating a Universal Task
    - Universal Task Details
    - Universal Task Details Field Descriptions
- Viewing a Universal Task Instance
    - Universal Task Instance Details
    - Universal Task Instance Details Field Descriptions
- Additional Task and Task Instance Details
- Running a Universal Task
- Monitoring Task Execution

Before You Begin

Universal Task allows you to run a platform-specific application on a Linux/Unix or Windows machine. To run a Universal task, you must first complete the following tasks:

- Install Universal Agent for Linux/Unix on a Linux/Unix machine and/or install Universal Agent for Windows on a Windows machine.
- Launch the Agent(s). When an Agent connects with the Controller, it automatically creates an Agent resource definition in the database.
- Optionally, customize the Agent heartbeat and log levels, as described in:
    - Linux/Unix Agent Details Field Descriptions.
    - Windows Agent Details Field Descriptions

Built-In Variables

In addition to the system-assigned variables in the Universal Template script that a Universal task executes, the following built-in variables can be used in a Universal task to pass data where appropriate:

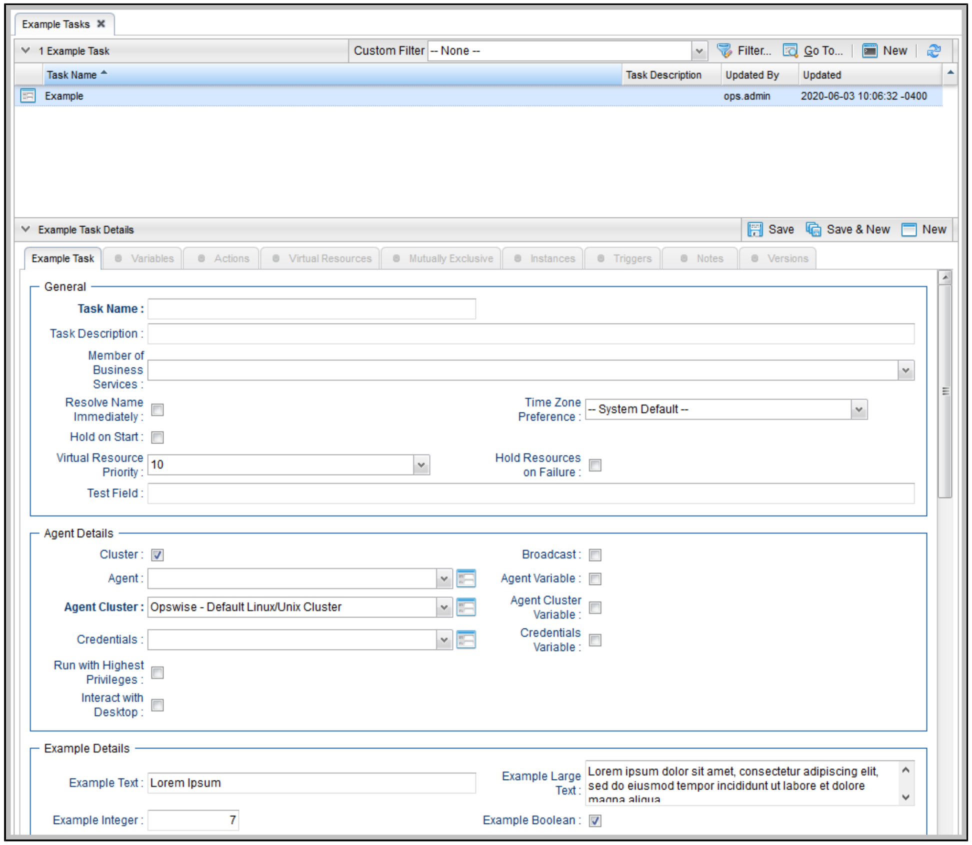
- Agent-Based Task Instance variables
- Task Instance variables

Creating a Universal Task

Step 1

From the **Universal Tasks** section of the Automation Center navigation pane, select a Universal Task type. The Universal Tasks list for that Universal Task type displays.

Below the list, Universal Task Details for a new Universal Task displays.



Example Tasks

1 Example Task — Custom Filter: -- None --

Task Name	Task Description	Updated By	Updated
Example		ops.admin	2020-06-03 10:06:32 -0400

Example Task Details

General

Task Name:

Task Description:

Member of Business Services:

Resolve Name Immediately: ☐

Time Zone Preference: -- System Default --

Hold on Start: ☐

Virtual Resource Priority: 10

Hold Resources on Failure: ☐

Test Field:

Agent Details

Cluster: ☑

Broadcast: ☐

Agent:

Agent Variable: ☐

Agent Cluster: Opswise - Default Linux/Unix Cluster

Agent Cluster Variable: ☐

Credentials:

Credentials Variable: ☐

Run with Highest Privileges: ☐

Interact with Desktop: ☐

Example Details

Example Text: Lorem Ipsum

Example Large Text: Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua

Example Integer: 7

Example Boolean: ☑

Step 2

Enter / select Details for a new Universal Task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Universal Task Details are enabled.

Note

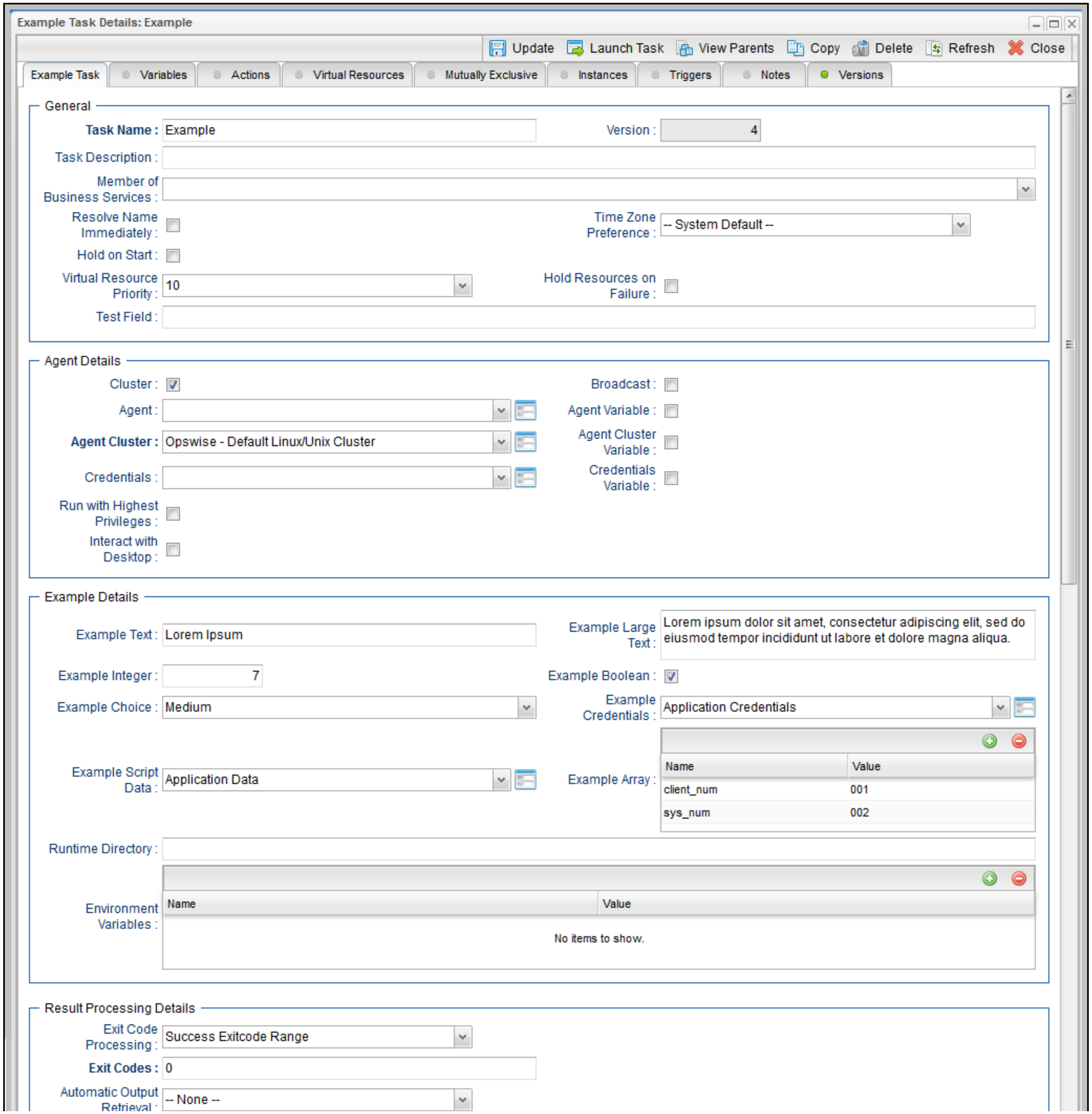
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Universal Task Details

The following Universal Task Details is for an existing Universal task.

Depending on the values that you enter / select for these fields, and whether or not the Universal Task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Universal Task Details.


Example Task Details: Example
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Example Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

General

Task Name : Example

Version : 4

Task Description :

Member of Business Services :

Resolve Name Immediately : ☐

Time Zone Preference : -- System Default --

Hold on Start : ☐

Virtual Resource Priority : 10

Hold Resources on Failure : ☐

Test Field :

Agent Details

Cluster : ☑

Broadcast : ☐

Agent :

Agent Variable : ☐

Agent Cluster : Opswise - Default Linux/Unix Cluster

Agent Cluster Variable : ☐

Credentials :

Credentials Variable : ☐

Run with Highest Privileges : ☐

Interact with Desktop : ☐

Example Details

Example Text : Lorem Ipsum

Example Large Text : Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Example Integer : 7

Example Boolean : ☑

Example Choice : Medium

Example Credentials : Application Credentials

Example Script Data : Application Data

Example Array :

Name	Value
client_num	001
sys_num	002

Runtime Directory :

Environment Variables :

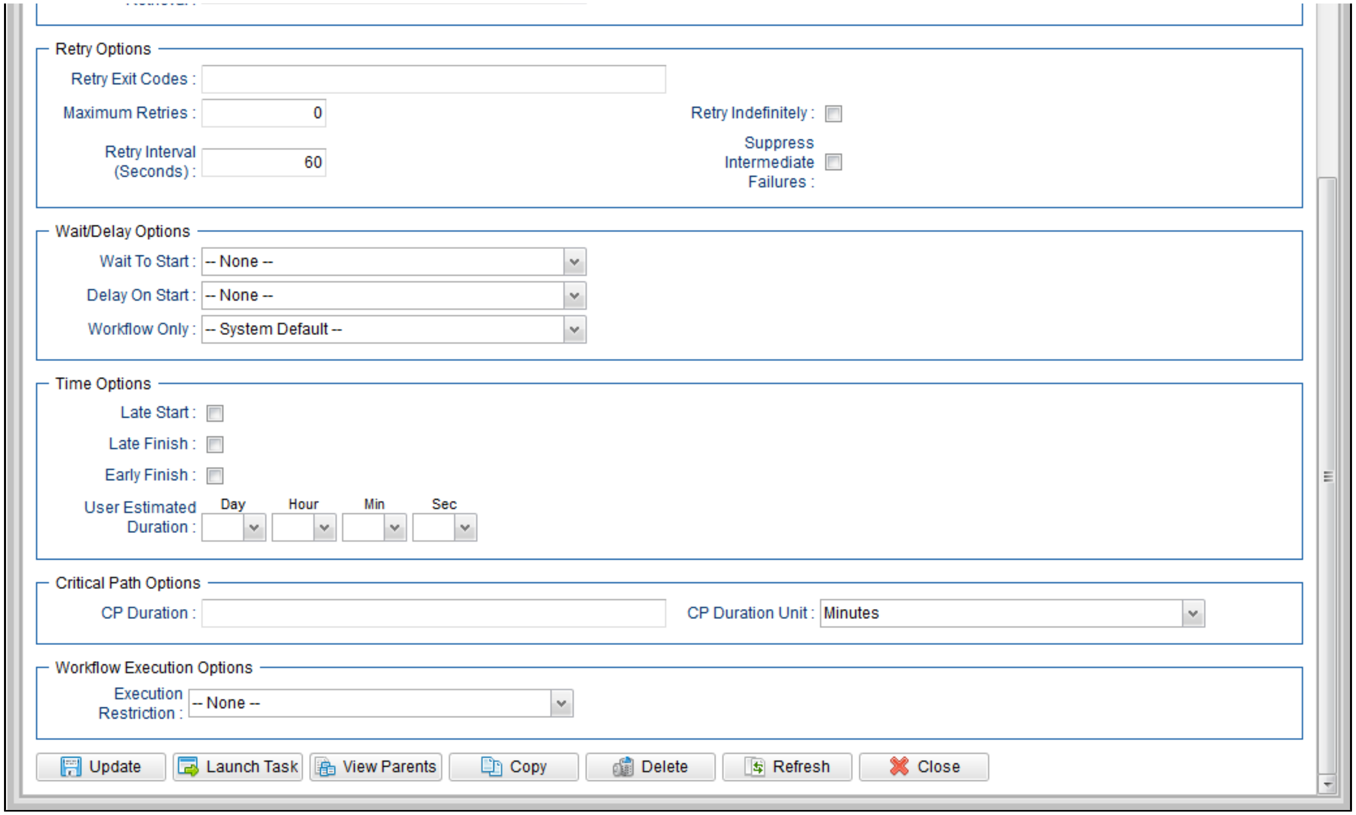
Name	Value
No items to show.	

Result Processing Details

Exit Code Processing : Success Exitcode Range

Exit Codes : 0

Automatic Output Retrieval : -- None --



Retry Options

Retry Exit Codes :

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Wait/Delay Options

Wait To Start : -- None --

Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

Universal Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Universal Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.

Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Details	This section contains assorted detailed information about the task. Note The fields in this section may have Read Only or Hidden restrictions applied to them, as specified in the Universal Template on which the Universal Task is based.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster.

Agent Cluster	Unable to render {include} The included page could not be found.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Credentials	Unable to render {include} The included page could not be found.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Cluster Broadcast	Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.

Cluster Broadcast Variable	Indication of whether the Cluster Broadcast field is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the Cluster Broadcast as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Cluster Broadcast reference to using a Cluster Broadcast variable, you must change the **Cluster Broadcast Variable** field to **Yes** and specify the Cluster Broadcast variable in the **Cluster Broadcast Unresolved** field. Conversely, to change from using a Cluster Broadcast variable to using a Cluster Broadcast reference, you must change the **Cluster Broadcast Variable** field to **No** and specify the Cluster Broadcast reference in the **Cluster Broadcast** field.
Run with Highest Privileges	For Windows Agents; Execute the task using an elevated privileges token, rather than one subject to User Account Control (UAC) restrictions. An elevated token allows a process to execute with all the privileges available to its specified credentials. For example, a task executed with an administrative account will behave as though it received permission via a UAC dialog to perform a privileged operation. This option will **not** give a user account privileges that have are not already granted to it. For example, taking ownership of a file is a privileged operation by default. A task will still fail even with this option selected if it is run with a regular user account that has not been granted the ability to change file ownership. Note This option only will affect tasks executed on Windows systems that support User Account Control (UAC). It will have no affect on tasks run on Windows releases prior to Vista (for example, Windows XP, Server 2003).

(user-defined fields)	The Details for each Universal Task contains any editable fields that were created in the Universal Template on which the Universal Task type for that Universal Task is based. System-assigned variables that match these fields are provided for inclusion in the template script. When the task is run, it executes the script, and the variables are resolved to the values of their matching values in the task.
	There are seven types of user-defined fields that can appear in the Details of a Universal Task:
	• Text
	  • Normal text (for a single line of text)
	  • Large Text (for multiple lines of text)
	• Integer
	• Boolean
	• Choice
	• Credential
	• Script
	• Array
	For each type of field, default values, format, and/or limitations are specified in the Universal Template. In any Universal Task based on that Universal Template, you can override and/or define values - within the specified format and limitations - for those fields.
	• If the Allow Empty Choice field was selected for a Choice field in the Universal Template on which this Universal Task was based, that Choice field in the task will include an empty (blank) selection.
	• If the Allow Multiple Choices field was selected for a Choice field in the Universal Template on which this Universal Task was based, that Choice field in the task will allow selection of more than one choice. When multiple choices are selected, the built-in field variable will resolve to a comma-delimited String of choice values.
	• Any field that has a Require If Field dependency on a Boolean field in the Universal Template on which the Universal Task is based will change from required to optional (or optional to required) when toggling the Boolean field checkbox, depending on the Require If Field Value(s).
	• Any field that has a Require If Field dependency on a Choice field in the Universal Template on which the Universal Task is based will become required when selecting a choice value specified in the Require If Field Value(s) and optional when selecting a choice value not specified in the Require If Field Value(s).
	• Any field that has a Show If Field dependency on a Boolean field in the Universal Template on which the Universal Task is based will change from visible to hidden (or hidden to visible) when toggling the Boolean field checkbox, depending on the Show If Field Value(s).
	• Any field that has a Show If Field dependency on a Choice field in the Universal Template on which the Universal Task is based will become visible when selecting a choice value specified in the Show If Field Value(s) and hidden when selecting a choice value not specified in the Show If Field Value(s).
	• Any field visible due to a Show If Field dependency in the Universal Template on which the Universal Task is based will display as required (bold label) if the Require If Visible option is specified for the Universal Template field; otherwise, it will display as optional (non-bold label).
	• By default, the column and row space occupied by a field remain reserved even when the field is hidden by a Show If Field dependency. To change the default behaviour, the No Space If Hidden option must be specified for the Universal Template field.

Runtime Directory	Directory from which the application should be executed. Variables supported.
Interact with Desktop	For Windows Agents; Specification that a Universal Task running an application with a GUI will require some manual actions from a user (for example, clicking buttons or entering values). Note This option is effective only for tasks executed on Windows XP or Server 2003. Windows Vista introduced the desktop isolation feature, which prevents tasks from accessing the interactive desktop session on Vista, Windows 7, Server 2008, Windows 8, and Server 2012. The Windows agent will execute the task, but the **Interact with Desktop** option has no effect. Therefore, an interactive application's GUI will not be visible on those platforms.
Create Console	If Interact with Desktop is enabled; Allocates a new console for the process, rather than having it inherit one.

Environment Variables	Allows you to enter environment variables needed by the program to run. To add a variable, click the **+** icon and enter a **Name** and **Value**. To delete a variable, select in the list of variables and click the **-** icon. You can add a maximum of 4,000 characters for the combined Names and Values of all variables. The variable is listed in the space underneath.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: - Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. - Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. - Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. - Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. - Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: - Standard Output (STDOUT) - Standard Error (STDERR) - File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.

Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • File Attach the file specified in the Output File field. • Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. • If a **Start Line** value is not specified, the default is 1. • If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.
Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.

Retry Exit Codes	Exit code range for which an auto-retry of tasks in FAILED status will occur. Exit code ranges must be in the same format as ranges specified in the Exit Codes field. Maximum Retries must be greater than 0. If this field is empty, any exit code potentially will cause a retry. Variables are supported.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day Do not advance day.
	- Next Day Advance to the next day.
	- Next Business Day Advance to the next business day.
	- Sunday If today is not Sunday, advance to next Sunday.
	- Monday If today is not Monday, advance to next Monday.
	- Tuesday If today is not Tuesday, advance to next Tuesday.
	- Wednesday If today is not Wednesday, advance to next Wednesday.
	- Thursday If today is not Thursday, advance to next Thursday.
	- Friday If today is not Friday, advance to next Friday.
	- Saturday If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: - – None – - Duration - Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note ⚠ You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

<table>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.

Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

Viewing a Universal Task Instance

When a Universal Task is launched, the Controller creates a task instance record of that task.

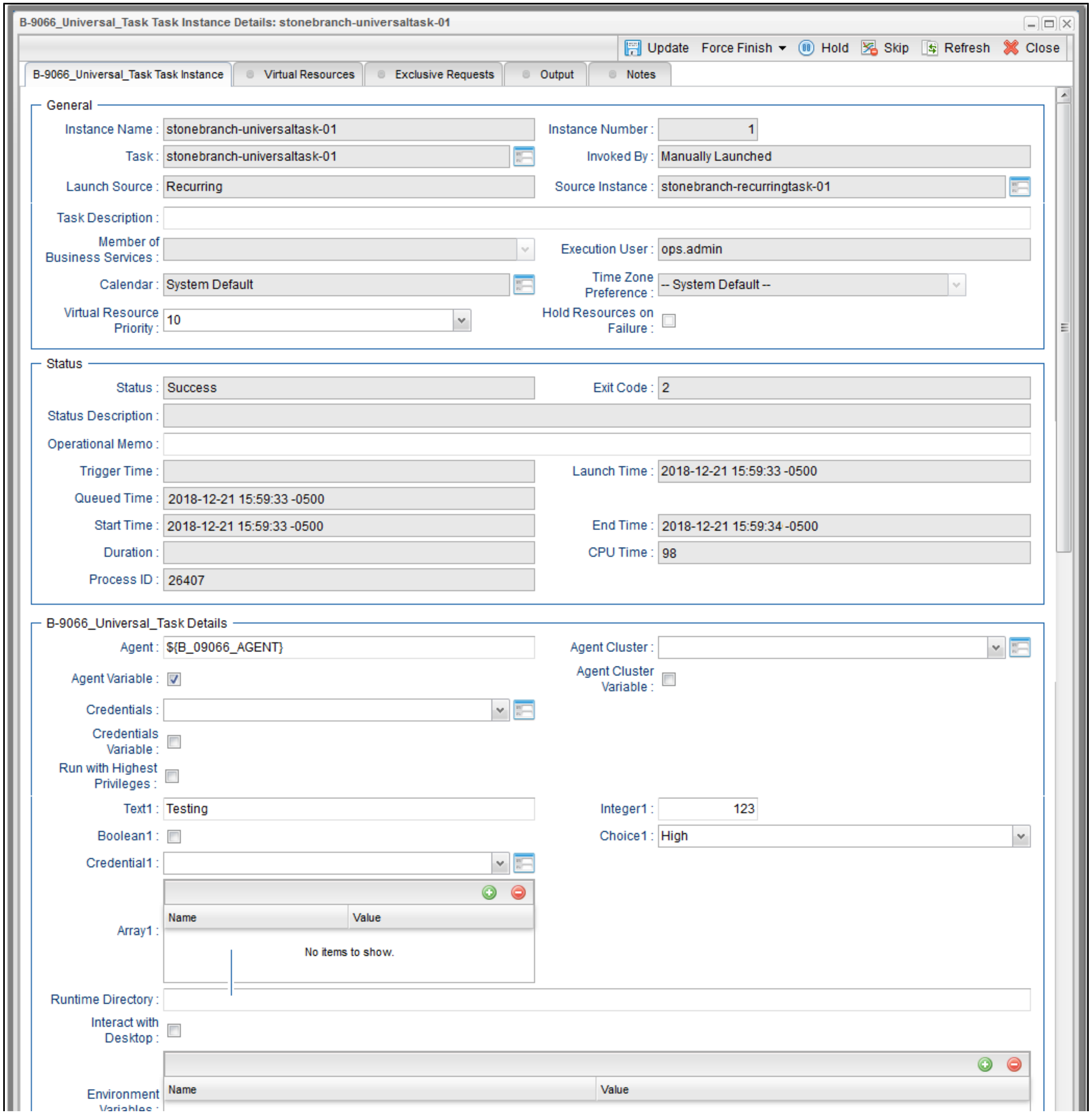
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Universal Task Details for that task
- Activity Monitor
- Task Instances list

Universal Task Instance Details

The following Universal Task Instance Details contains information on the execution of the task shown in the Universal Task Details.


Update
Force Finish
Hold
Skip
Refresh
Close
B-9066_Universal_Task Task Instance
Virtual Resources
Exclusive Requests
Output
Notes

B-9066_Universal_Task Task Instance Details: stonebranch-universaltask-01

General

Instance Name : stonebranch-universaltask-01
Instance Number : 1
Task : stonebranch-universaltask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Success
Exit Code : 2
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2018-12-21 15:59:33 -0500
Queued Time : 2018-12-21 15:59:33 -0500
Start Time : 2018-12-21 15:59:33 -0500
End Time : 2018-12-21 15:59:34 -0500
Duration :
CPU Time : 98
Process ID : 26407

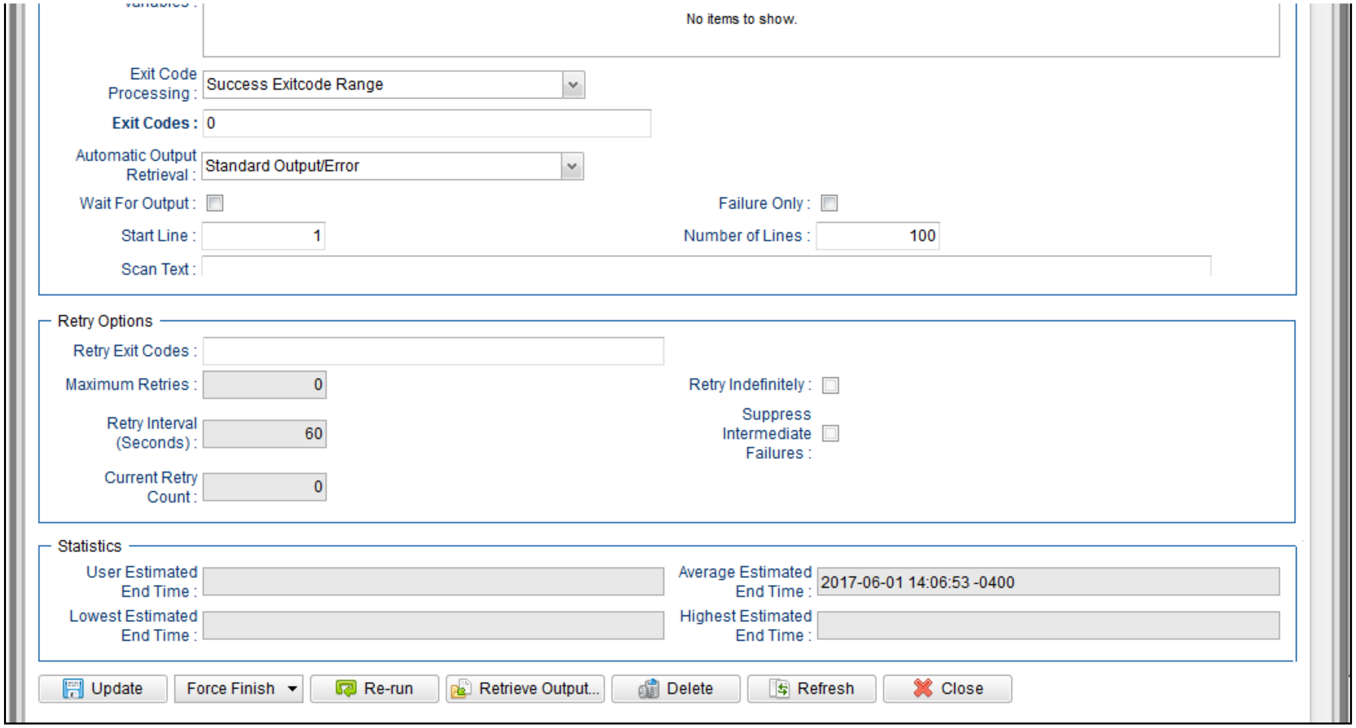
B-9066_Universal_Task Details

Agent : ${B_09066_AGENT}
Agent Cluster :
Agent Variable : ☑
Agent Cluster Variable : ☐
Credentials :
Credentials Variable : ☐
Run with Highest Privileges : ☐
Text1 : Testing
Integer1 : 123
Boolean1 : ☐
Choice1 : High
Credential1 :
Array1 :

Name	Value
No items to show.	

Runtime Directory :
Interact with Desktop : ☐
Environment Variables :

Name	Value



No items to show.

Exit Code Processing : Success Exitcode Range

Exit Codes : 0

Automatic Output Retrieval : Standard Output/Error

Wait For Output : ☐

Failure Only : ☐

Start Line : 1

Number of Lines : 100

Scan Text :

Retry Options

Retry Exit Codes :

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Current Retry Count : 0

Statistics

User Estimated End Time :

Average Estimated End Time : 2017-06-01 14:06:53 -0400

Lowest Estimated End Time :

Highest Estimated End Time :

Universal Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Universal Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.

Invoked by	System-supplied; how the task instance was launched. Options: - Trigger: (Trigger Name) Instance was launched by the named trigger. - Workflow: (Workflow Name) Instance was launched by the named workflow. - Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Launch Source	System-supplied; Source from which this Recurring task was launched. Options: - Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. - Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. - Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. - Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)

Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
CPU Time	System-supplied; amount of CPU time the task took to run.
CPU Time	System-supplied; amount of CPU time the task took to run.
Process ID	System-supplied; ID of the process that was launched.
Task Details	This section contains assorted detailed information about the task instance. Note The fields in this section may have Read Only or Hidden restrictions applied to them, as specified in the Universal Template on which the Universal Task is based.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster.

Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	Unable to render {include} The included page could not be found.
Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Credentials	Unable to render {include} The included page could not be found.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.

Run with Highest Privileges	For Windows Agents; Execute the task using an elevated privileges token, rather than one subject to User Account Control (UAC) restrictions. An elevated token allows a process to execute with all the privileges available to its specified credentials. For example, a task executed with an administrative account will behave as though it received permission via a UAC dialog to perform a privileged operation. This option will **not** give a user account privileges that have are not already granted to it. For example, taking ownership of a file is a privileged operation by default. A task will still fail even with this option selected if it is run with a regular user account that has not been granted the ability to change file ownership. Note This option only will affect tasks executed on Windows systems that support User Account Control (UAC). It will have no affect on tasks run on Windows releases prior to Vista (for example, Windows XP, Server 2003).

(user-defined fields)	The Details for each Universal Task contains any editable fields that were created in the Universal Template on which the Universal Task type for that Universal Task is based. System-assigned variables that match these fields are provided for inclusion in the template script. When the task is run, it executes the script, and the variables are resolved to the values of their matching values in the task.
	There are seven types of user-defined fields that can appear in the Details of a Universal Task:
	• Text
	  • Normal text (for a single line of text)
	  • Large Text (for multiple lines of text)
	• Integer
	• Boolean
	• Choice
	• Credential
	• Script
	• Array
	For each type of field, default values, format, and/or limitations are specified in the Universal Template. In any Universal Task based on that Universal Template, you can override and/or define values - within the specified format and limitations - for those fields.
	• If the Allow Empty Choice field was selected for a Choice field in the Universal Template on which this Universal Task was based, that Choice field in the task will include an empty (blank) selection.
	• If the Allow Multiple Choices field was selected for a Choice field in the Universal Template on which this Universal Task was based, that Choice field in the task will allow selection of more than one choice. When multiple choices are selected, the built-in field variable will resolve to a comma-delimited String of choice values.
	• Any field that has a Require If Field dependency on a Boolean field in the Universal Template on which the Universal Task is based will change from required to optional (or optional to required) when toggling the Boolean field checkbox, depending on the Require If Field Value(s).
	• Any field that has a Require If Field dependency on a Choice field in the Universal Template on which the Universal Task is based will become required when selecting a choice value specified in the Require If Field Value(s) and optional when selecting a choice value not specified in the Require If Field Value(s).
	• Any field that has a Show If Field dependency on a Boolean field in the Universal Template on which the Universal Task is based will change from visible to hidden (or hidden to visible) when toggling the Boolean field checkbox, depending on the Show If Field Value(s).
	• Any field that has a Show If Field dependency on a Choice field in the Universal Template on which the Universal Task is based will become visible when selecting a choice value specified in the Show If Field Value(s) and hidden when selecting a choice value not specified in the Show If Field Value(s).
	• Any field visible due to a Show If Field dependency in the Universal Template on which the Universal Task is based will display as required (bold label) if the Require If Visible option is specified for the Universal Template field; otherwise, it will display as optional (non-bold label).
	• By default, the column and row space occupied by a field remain reserved even when the field is hidden by a Show If Field dependency. To change the default behaviour, the No Space If Hidden option must be specified for the Universal Template field.

Runtime Directory	Directory from which the application should be executed. Variables supported.

Interact with Desktop	For Windows Agents; Specification that a Universal Task running an application with a GUI will require some manual actions from a user (for example, clicking buttons or entering values). Note ⚠ This option is effective only for tasks executed on Windows XP or Server 2003. Windows Vista introduced the desktop isolation feature, which prevents tasks from accessing the interactive desktop session on Vista, Windows 7, Server 2008, Windows 8, and Server 2012. The Windows agent will execute the task, but the **Interact with Desktop** option has no effect. Therefore, an interactive application's GUI will not be visible on those platforms.
Create Console	If Interact with Desktop is enabled; Allocates a new console for the process, rather than having it inherit one.
Environment Variables	Allows you to enter environment variables needed by the program to run. To add a variable, click the **+** icon and enter a **Name** and **Value**. To delete a variable, select in the list of variables and click the **-** icon. You can add a maximum of 4,000 characters for the combined Names and Values of all variables. The variable is listed in the space underneath.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. • Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.

Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • File Attach the file specified in the Output File field. • Standard Output/Error Attach all standard output and standard error output. Note ⚠ Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. • If a **Start Line** value is not specified, the default is 1. • If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.

Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.
Retry Exit Codes	Exit code range for which an auto-retry of tasks in FAILED status will occur. Exit code ranges must be in the same format as ranges specified in the Exit Codes field. Maximum Retries must be greater than 0. If this field is empty, any exit code potentially will cause a retry. Variables are supported. Note If you are updating a task instance, the Retry Exit Codes field must be resolved; you cannot change the value to a variable. .
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.

Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: - Seconds - Minutes - Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: - -- None -- No restriction for this task. - Run Restriction for when this task will be run. - Skip Restriction for when this task will be skipped. - Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: - – None – No period of restriction for this task. - Before Restriction is valid if the date is before the Before Date value. - After Restriction is valid if the date is after the After Date value. - Span Restriction is valid if the date is before the Before Date value and after After Date value. - On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note ⚠ If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.

Output	Displays output generated from the process, if any, based on specifications provided by the user in the Automatic Output Retrieval fields in the task Details. If automatic output retrieval was not available or was not selected, output can be obtained by clicking the Retrieve Output button.
Notes	Lists all notes associated with this record.

Additional Task and Task Instance Details

For information on how to access additional details - such as Metadata and complete database Details - for Universal Tasks and Universal Task Instances (or any type of record), see Records.

Running a Universal Task

You can run a Universal Task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the Universal Tasks list or Universal Task Details Action menu.
- As part of a Workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Creating Tasks

- Tasks
    - Task Types
    - Built-In Variables
- Creating a Task
- All Tasks List
    - All Tasks List Information
- <Task Type> Tasks List
    - <Task Type> Tasks List Information
- Task Details
- Task Instance Details
- Additional Task and Task Instance Details
    - Task Instance Status History
- User-Defined Fields
    - URLs in User-Defined Fields
- Updating Tasks
- Deleting Tasks
- Viewing Task Parents
- Additional Information

Tasks

A Universal Controller task executes a process on a machine, either local or remote. The process might be resident on the machine (agent-based process), or the task itself (such as a File Monitor task) might embed the process.

You can launch tasks within Workflows, by way of triggers, or manually.

Task Types

Task Type	Usage
Workflow	Create a sequence of connected tasks, which could include other workflows.
Linux/Unix	Run a platform-specific application on a Linux/Unix machine.
Windows	Run a platform-specific application on a Windows machine.
z/OS	Run a platform-specific application on a z/OS machine.
Universal Command	Run a platform-specific application on a machine where Universal Command is running.
SAP	Send commands to an SAP system and gather status information and output back from SAP.
PeopleSoft	Send commands to a PeopleSoft system and gather status information and output back from PeopleSoft.
File Transfer	Execute file transfers on remote machines using FTP, FTPS, SFTP, and UDM protocols.
Manual	Create a pause in the workflow during which the user must take some action.

Timer	Execute a timer command for a specified period of time or until a specific time.
SQL	Execute one or a series of SQL statements against the database specified in the task.
Stored Procedure	Execute a stored procedure against the database specified in the task.
Email	Create and send emails.
Web Service	Invokes a Web Service running on any application server.
Recurring	Specifies the recurrence of a task run.
Task Monitor	Monitor another task or tasks for one or more specific statuses.
Agent File Monitor	Monitor a specific remote machine for the creation, deletion, change, existence, or non-existence of one or more files at a specific location.
Remote File Monitor	Monitor for a file on a remote machine where an FTP server is running.
System Monitor	Monitor a specific remote machine and check for free disk space.
Variable Monitor	Monitor the value of a Global variable.
Email Monitor	Monitor a Mailbox Folder for one or more specific statuses.
Application Control	Execute a start, stop, or query command against an application in the Controller network.
Universal	Execute a user-defined script in a Universal Template on which the task is based.

Built-In Variables

Several built-in variables are available for use in all task types; other built-in variables exist for specific task types.

Creating a Task

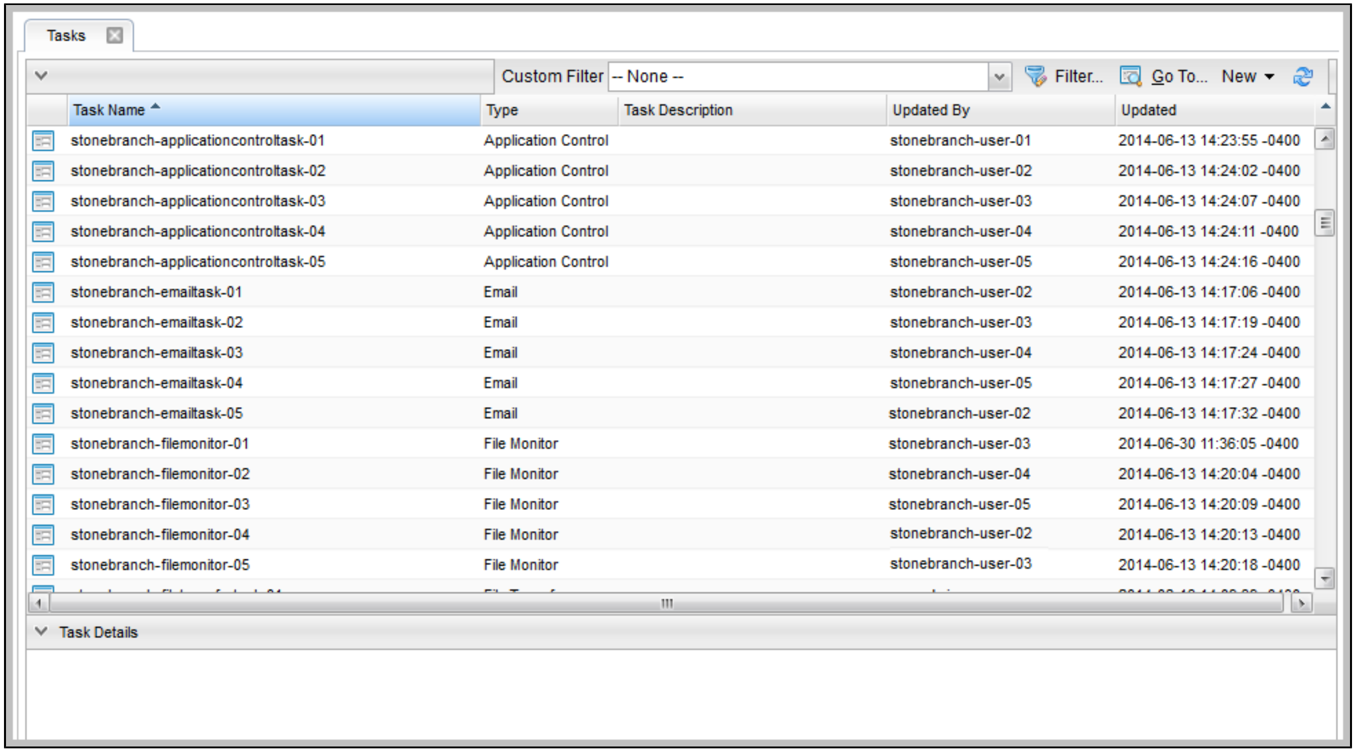
There are multiple ways to create a task:

1. On the All Tasks list, click the **New** drop-down list and select a task type. A Task Details pop-up displays that lets you enter / select information for a new task.
2. On the Tasks list for a specific task type, click the **New** icon. A Task Details pop-up displays that lets you enter / select information for a new task.
3. In the empty (except for default values) Task Details that displays below the task list for a specific task type, enter / select information for a new task. If the Task Details displays information for an existing task, click the **New** button to clear the Task Details and enter / select information for a new task.
4. Create a copy of a task by clicking the **Copy** button in the Task Details and renaming the task.

For detailed information on creating a task for a specific task type, click that task type in the Task Types table, above.

All Tasks List

To display a list of all currently defined tasks for all task types, from the Automation Center navigation pane select **Tasks > All Tasks**. The All Tasks list displays.



Custom Filter -- None --

Task Name	Type	Task Description	Updated By	Updated
stonebranch-applicationcontroltask-01	Application Control		stonebranch-user-01	2014-06-13 14:23:55 -0400
stonebranch-applicationcontroltask-02	Application Control		stonebranch-user-02	2014-06-13 14:24:02 -0400
stonebranch-applicationcontroltask-03	Application Control		stonebranch-user-03	2014-06-13 14:24:07 -0400
stonebranch-applicationcontroltask-04	Application Control		stonebranch-user-04	2014-06-13 14:24:11 -0400
stonebranch-applicationcontroltask-05	Application Control		stonebranch-user-05	2014-06-13 14:24:16 -0400
stonebranch-emailtask-01	Email		stonebranch-user-02	2014-06-13 14:17:06 -0400
stonebranch-emailtask-02	Email		stonebranch-user-03	2014-06-13 14:17:19 -0400
stonebranch-emailtask-03	Email		stonebranch-user-04	2014-06-13 14:17:24 -0400
stonebranch-emailtask-04	Email		stonebranch-user-05	2014-06-13 14:17:27 -0400
stonebranch-emailtask-05	Email		stonebranch-user-02	2014-06-13 14:17:32 -0400
stonebranch-filemonitor-01	File Monitor		stonebranch-user-03	2014-06-30 11:36:05 -0400
stonebranch-filemonitor-02	File Monitor		stonebranch-user-04	2014-06-13 14:20:04 -0400
stonebranch-filemonitor-03	File Monitor		stonebranch-user-05	2014-06-13 14:20:09 -0400
stonebranch-filemonitor-04	File Monitor		stonebranch-user-02	2014-06-13 14:20:13 -0400
stonebranch-filemonitor-05	File Monitor		stonebranch-user-03	2014-06-13 14:20:18 -0400

All Tasks List Information

The following table provides a description of the default columns that display on the All Tasks list.

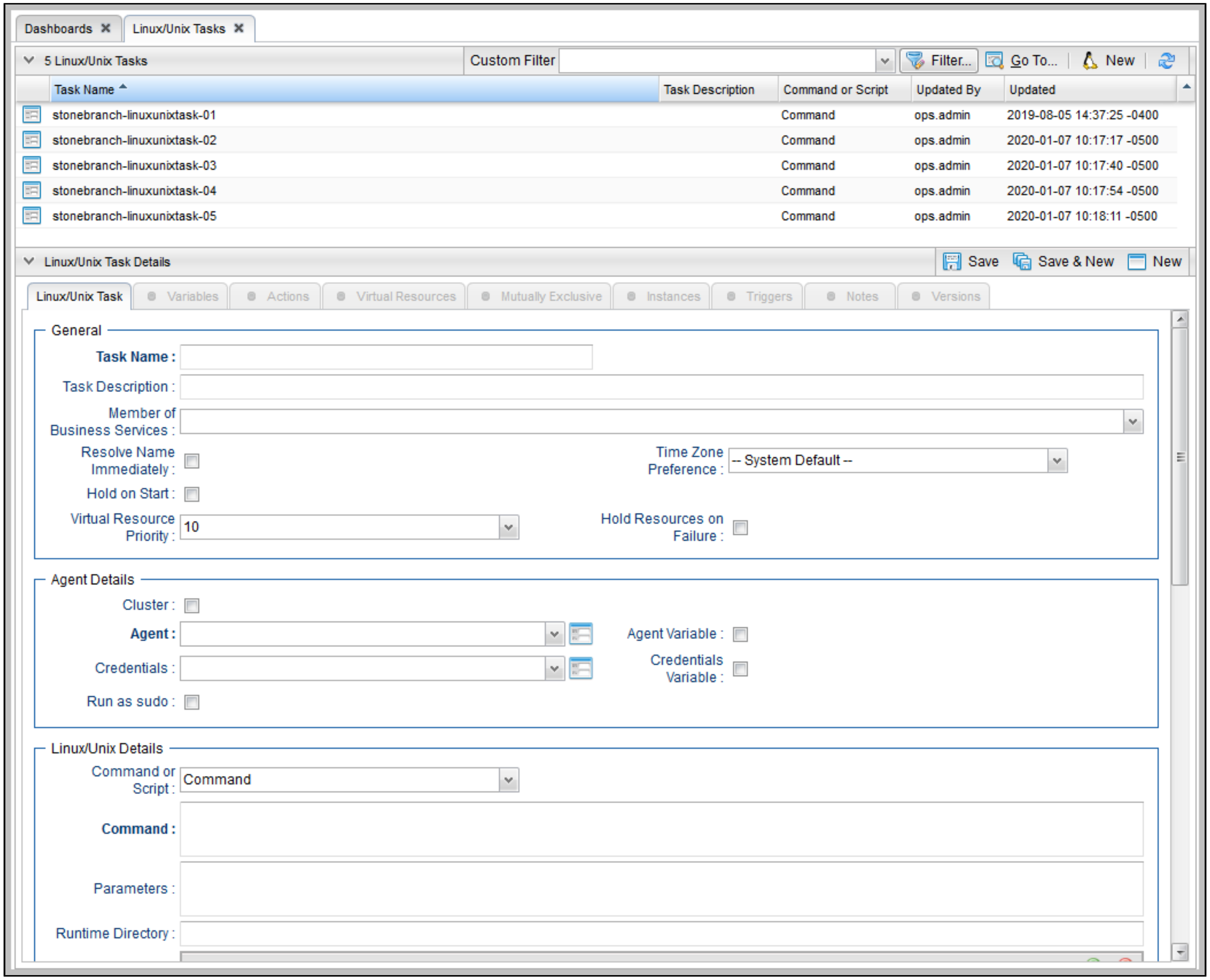
For information about customizing this list, including filtering, sorting, searching, and other list features, see Record Lists.

Column	Description
Task Name	User-defined. Name assigned to this task.
Type	Type of task.
Task Description	User-defined. Copied from the Task Description field in the task.
Updated By	System-supplied; User that last updated this record.
Updated	System-supplied; Date and time this record was last updated.

<Task Type> Tasks List

If you select **Tasks ><Task Type>** from the Automation Center navigation pane, a tasks list for that selected task type displays.

For example:


Dashboards
Linux/Unix Tasks
5 Linux/Unix Tasks
Custom Filter
Filter...
Go To...
New
Linux/Unix Task Details
Save
Save & New
New
Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately :
Hold on Start :
Hold Resources on Failure :
Agent Details
Cluster :
Agent :
Agent Variable :
Credentials :
Credentials Variable :
Run as sudo :
Linux/Unix Details
Command :
Parameters :
Runtime Directory :

Task Name	Task Description	Command or Script	Updated By	Updated
stonebranch-linuxunixtask-01		Command	ops.admin	2019-08-05 14:37:25 -0400
stonebranch-linuxunixtask-02		Command	ops.admin	2020-01-07 10:17:17 -0500
stonebranch-linuxunixtask-03		Command	ops.admin	2020-01-07 10:17:40 -0500
stonebranch-linuxunixtask-04		Command	ops.admin	2020-01-07 10:17:54 -0500
stonebranch-linuxunixtask-05		Command	ops.admin	2020-01-07 10:18:11 -0500

Time Zone Preference : -- System Default --

Virtual Resource Priority : 10

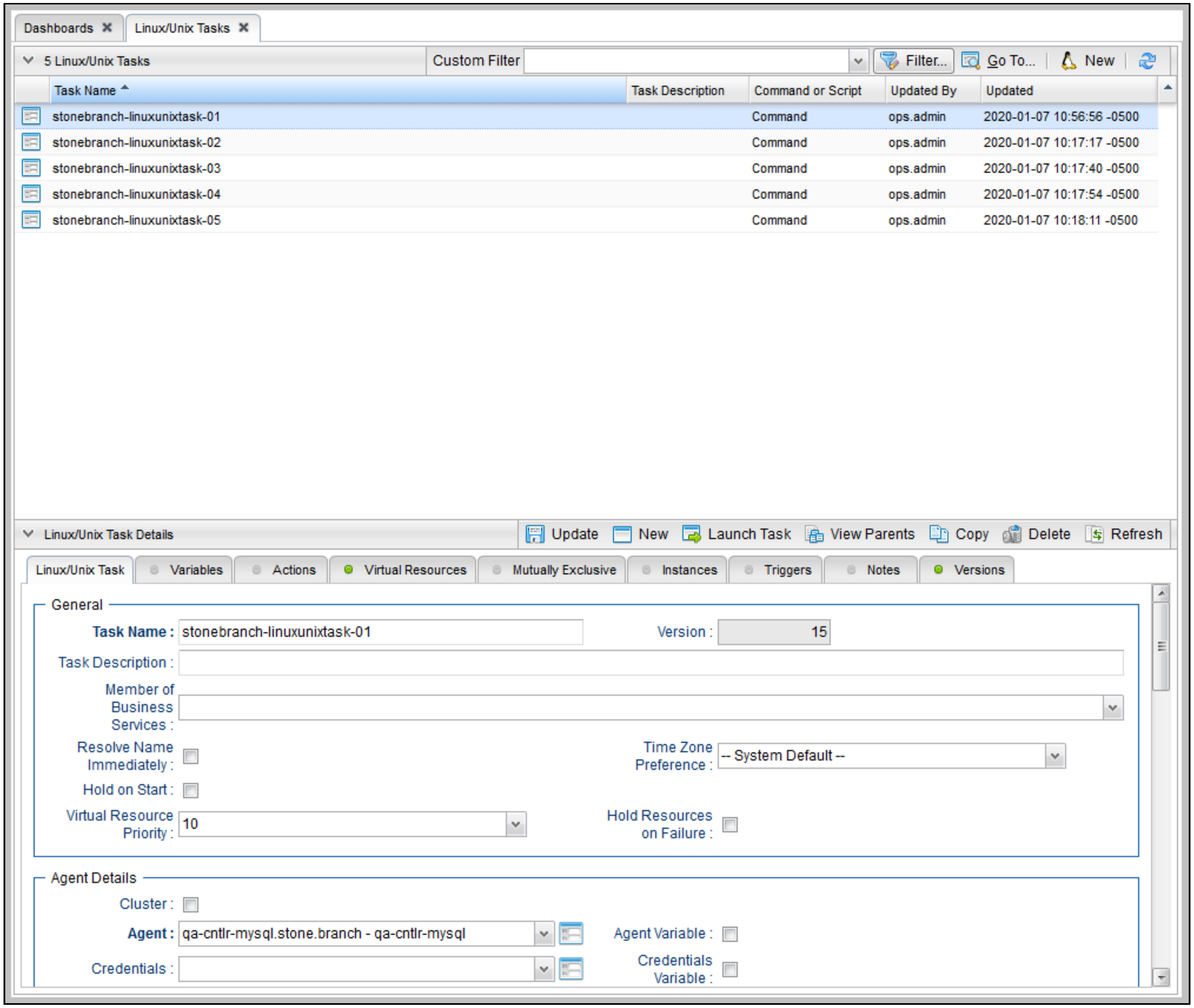
Command or Script : Command

<Task Type> Tasks List Information

The default columns that display on a <Task Type> Tasks list are specific to that type of task.

Task Details

When you click a task in a Tasks List, Task Details below the list displays all currently defined information for that task.

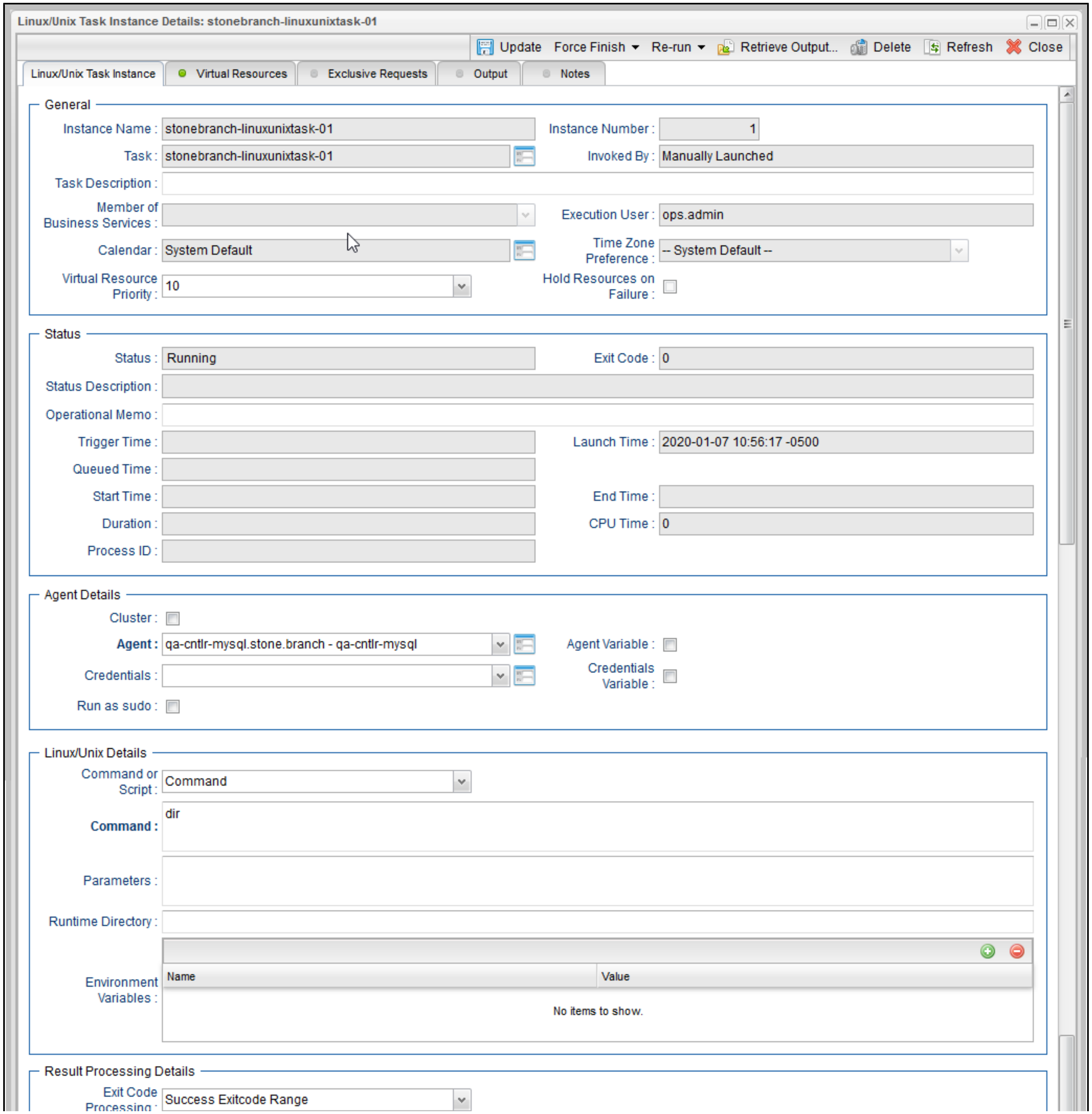

Dashboards
Linux/Unix Tasks
5 Linux/Unix Tasks
Custom Filter
Filter...
Go To...
New
Linux/Unix Task Details
Update
New
Launch Task
View Parents
Copy
Delete
Refresh
Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Agent Details

Task Name	Task Description	Command or Script	Updated By	Updated
stonebranch-linuxunixtask-01		Command	ops.admin	2020-01-07 10:56:56 -0500
stonebranch-linuxunixtask-02		Command	ops.admin	2020-01-07 10:17:17 -0500
stonebranch-linuxunixtask-03		Command	ops.admin	2020-01-07 10:17:40 -0500
stonebranch-linuxunixtask-04		Command	ops.admin	2020-01-07 10:17:54 -0500
stonebranch-linuxunixtask-05		Command	ops.admin	2020-01-07 10:18:11 -0500

Task Name : stonebranch-linuxunixtask-01
Version : 15
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Cluster : ☐
Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Agent Variable : ☐
Credentials :
Credentials Variable : ☐

Use the scroll bar on the right to view more of the Details, or click the Details icon next to the **Task Name** of the task to display a pop-up version of the task Details.


Update
Force Finish
Re-run
Retrieve Output...
Delete
Refresh
Close
Linux/Unix Task Instance
Virtual Resources
Exclusive Requests
Output
Notes
No items to show.

Linux/Unix Task Instance Details: stonebranch-linuxunixtask-01

General

Instance Name : stonebranch-linuxunixtask-01
Instance Number : 1
Task : stonebranch-linuxunixtask-01
Invoked By : Manually Launched
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Running
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-07 10:56:17 -0500
Queued Time :
Start Time :
End Time :
Duration :
CPU Time : 0
Process ID :

Agent Details

Cluster : ☐
Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Agent Variable : ☐
Credentials :
Credentials Variable : ☐
Run as sudo : ☐

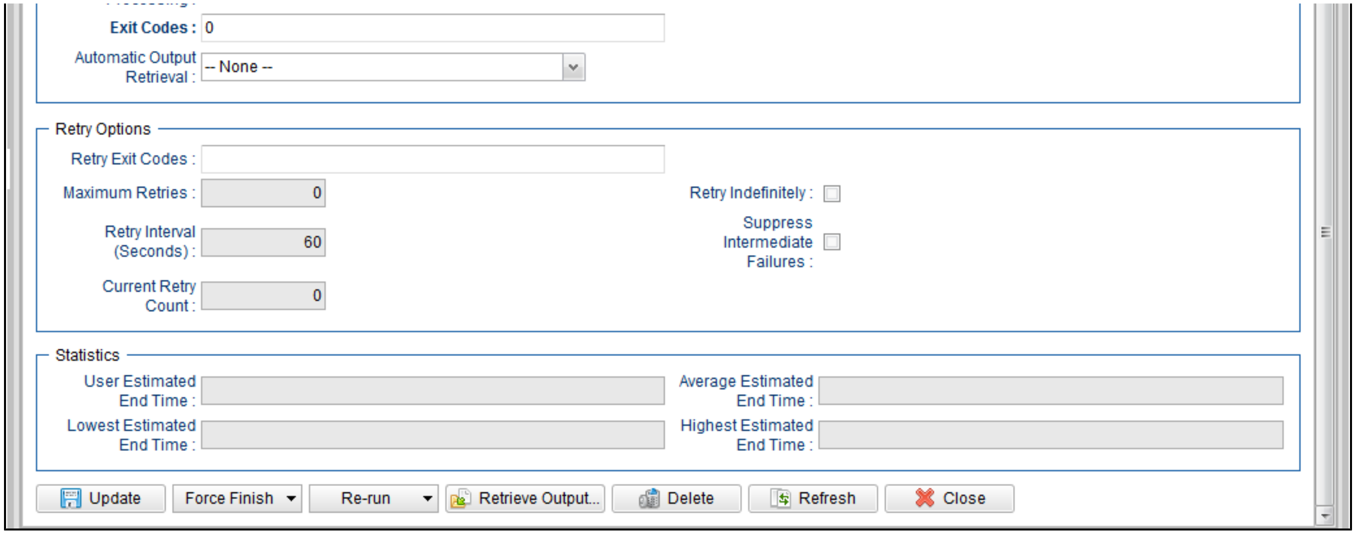
Linux/Unix Details

Command or Script : Command
Command : dir
Parameters :
Runtime Directory :
Environment Variables :

Name	Value

Result Processing Details

Exit Code Processing : Success Exitcode Range



Exit Codes : 0

Automatic Output Retrieval : -- None --

Retry Options

Retry Exit Codes :

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Current Retry Count : 0

Statistics

User Estimated End Time :

Average Estimated End Time :

Lowest Estimated End Time :

Highest Estimated End Time :

For more information on viewing Details of any record type, including tasks, see Records.

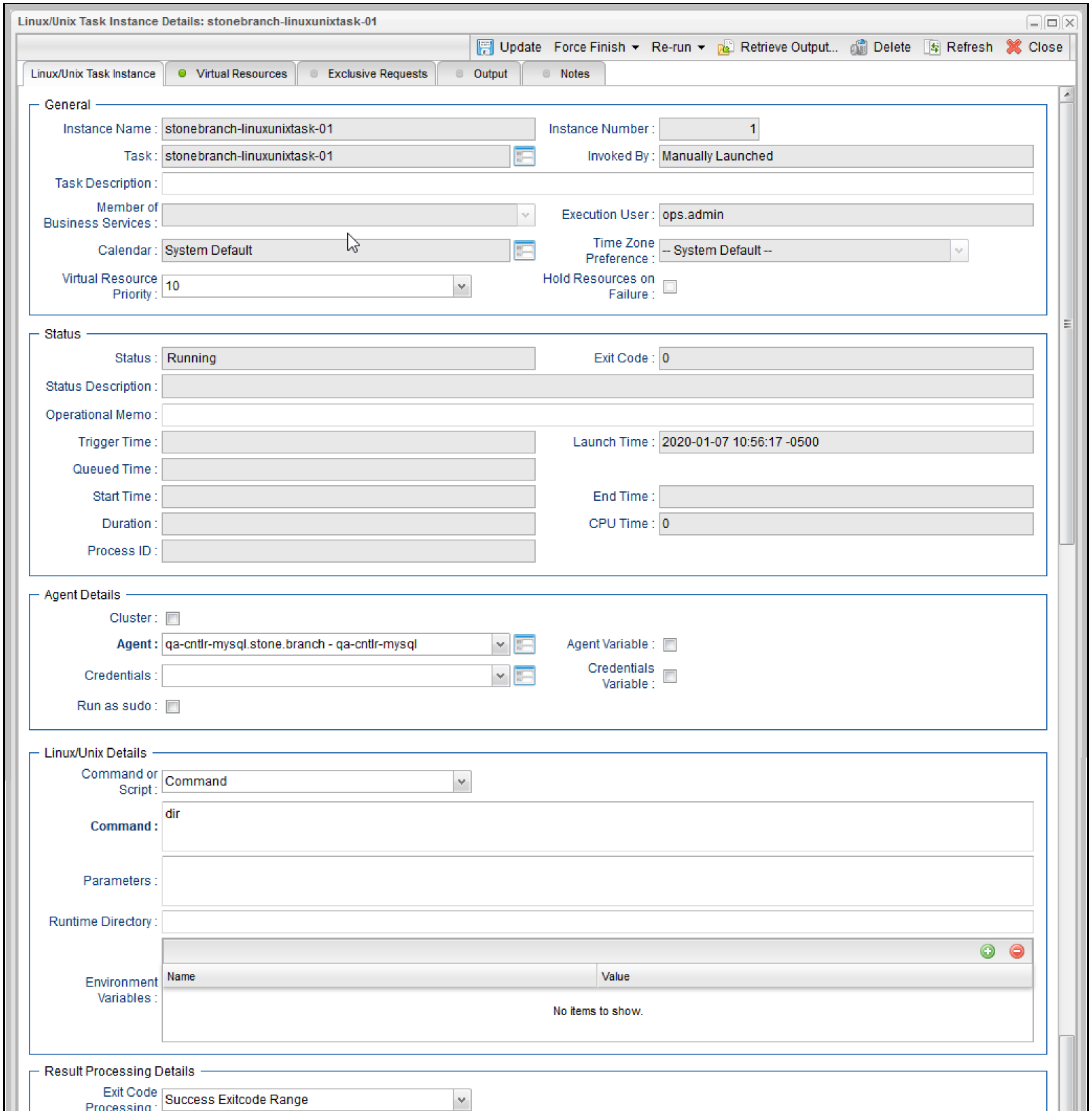
For information on Details for a specific task type, click the appropriate link in Task Types, above.

Task Instance Details

When you run a task, the Controller create a task instance of that task.

You can view task instance details either by:

- From the Task Details, click the Instances tab and select a task instance of that task.
- Select a task instance from the Activity Monitor.
- Select a task instance from the Task Instances list.


Update
Force Finish
Re-run
Retrieve Output...
Delete
Refresh
Close
Linux/Unix Task Instance
Virtual Resources
Exclusive Requests
Output
Notes

Linux/Unix Task Instance Details: stonebranch-linuxunixtask-01

General

Instance Name : stonebranch-linuxunixtask-01
Instance Number : 1
Task : stonebranch-linuxunixtask-01
Invoked By : Manually Launched
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Running
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-07 10:56:17 -0500
Queued Time :
Start Time :
End Time :
Duration :
CPU Time : 0
Process ID :

Agent Details

Cluster : ☐
Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Agent Variable : ☐
Credentials :
Credentials Variable : ☐
Run as sudo : ☐

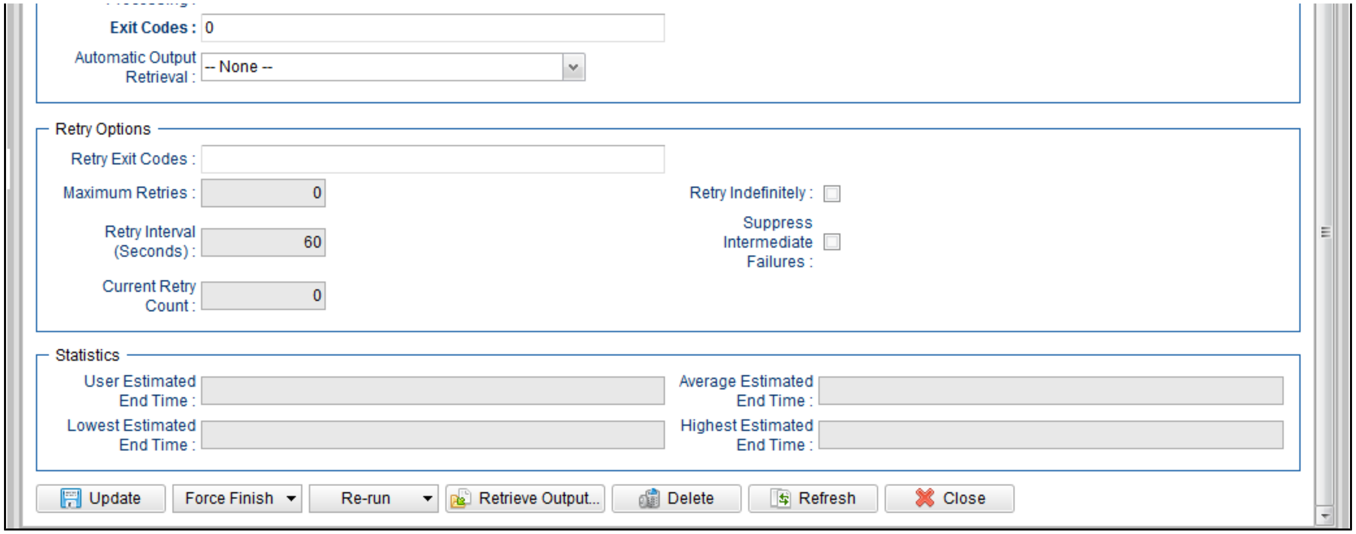
Linux/Unix Details

Command or Script : Command
Command : dir
Parameters :
Runtime Directory :
Environment Variables :

Name	Value
No items to show.	

Result Processing Details

Exit Code Processing : Success Exitcode Range



Exit Codes : 0

Automatic Output Retrieval : -- None --

Retry Options

Retry Exit Codes :

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Current Retry Count : 0

Statistics

User Estimated End Time :

Average Estimated End Time :

Lowest Estimated End Time :

Highest Estimated End Time :

Additional Task and Task Instance Details

For information on how to access additional details - such as Metadata and complete database Details - for Tasks and Task Instances (or any type of record), see Records.

Task Instance Status History

The Status History of every task instance is contained in the Metadata and database Details. You also can select to display Status History for every task instance on the Activity Monitor, Task Instances list, and the History list.

User-Defined Fields

You can define two fields that will display in the General Information section of the task Details for every existing and new task and task instance.

To define a user-defined field:

1. Enter a value in either of the following Universal Controller system properties:
    - User Defined Task Field Label 1
    - User Defined Task Field Label 2
2. Re-login or click your browser refresh button to see the field(s) in every task Details. In either case, all unsaved changes will be lost, including any open application tabs.

Note

The Custom Field 1 and Custom Field 2 built-in variables resolve to the current values of these user-defined fields.

URLs in User-Defined Fields

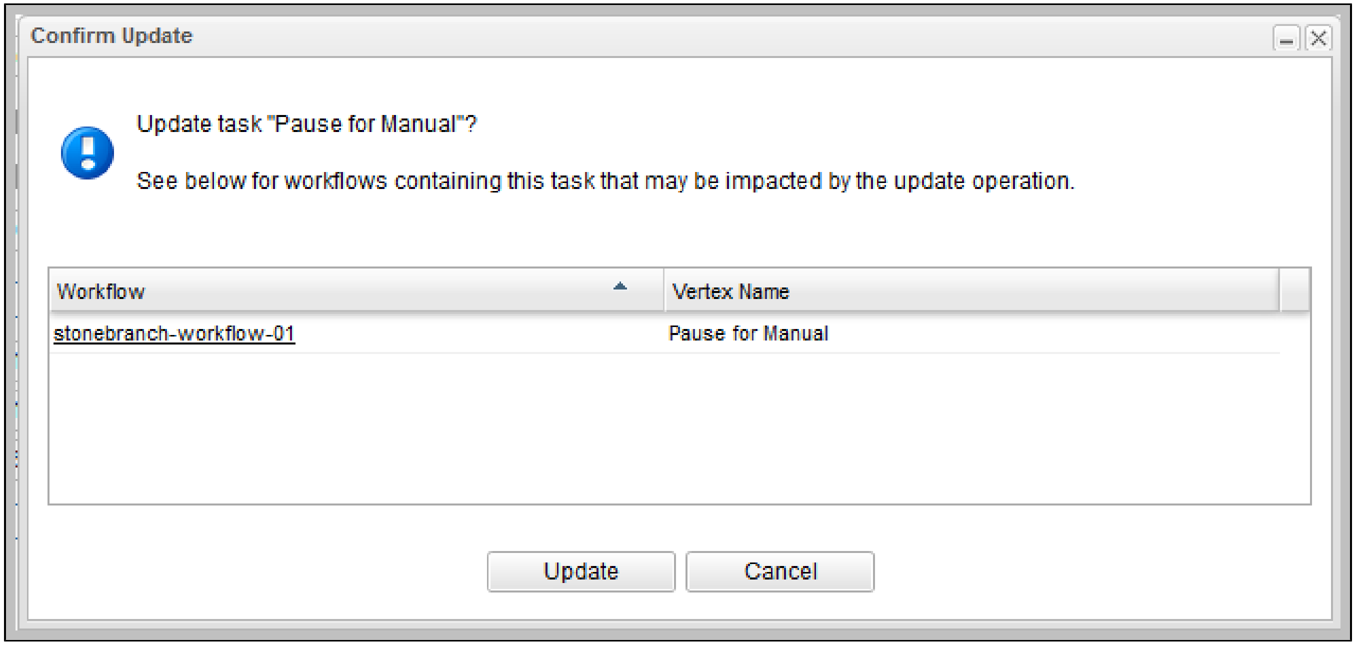
You can enter a URL in a user-defined field in any task Details. Format: http://, https://, and ftp:// are supported. For example: https://www.stonebranch.com.

An icon, which links to the URL resource, will automatically display next to the field. If you select that user-defined field as a column in the tasks list for that task type, the URL displays as a link in that column for that task. When you click the field icon or the URL link in the column, the URL resource will open in a new browser tab.

Updating Tasks

To save information that you have changed in a task, you must click the **Update** button that displays above and below the Task Details.

If the task is contained in one or more Workflows, and the Confirm Update For Tasks In Workflows Universal Controller system property value is set to **true**, the Confirm Update dialog displays when you click **Update**.



Update task "Pause for Manual"?

See below for workflows containing this task that may be impacted by the update operation.

Workflow	Vertex Name
stonebranch-workflow-01	Pause for Manual

The Confirm Update dialog allows you to see which Workflows could be impacted by the update.

It displays, by default, two columns of information:

Workflow	Name of a Workflow that contain the task.
Vertex Name	Name of the task (or task alias) within the Workflow.

You also can display the following additional column by right-clicking either column header and selecting it from **Columns** on the Action menu:

Vertex Id	ID of the task vertex within the Workflow.

Click the **OK** button to update the task, or click the **Cancel** button.

Note

You also can see this parent Workflows information for a task without updating a task (see Viewing Task Parents).

For information on updating multiple tasks, see Updating Multiple Records.

Deleting Tasks

To delete a task, either:

- Right-click the task in a tasks list and, on the displayed Action menu, click **Delete**.
- Open the task and click the **Delete** button.

Note

You cannot delete a task if it is either:

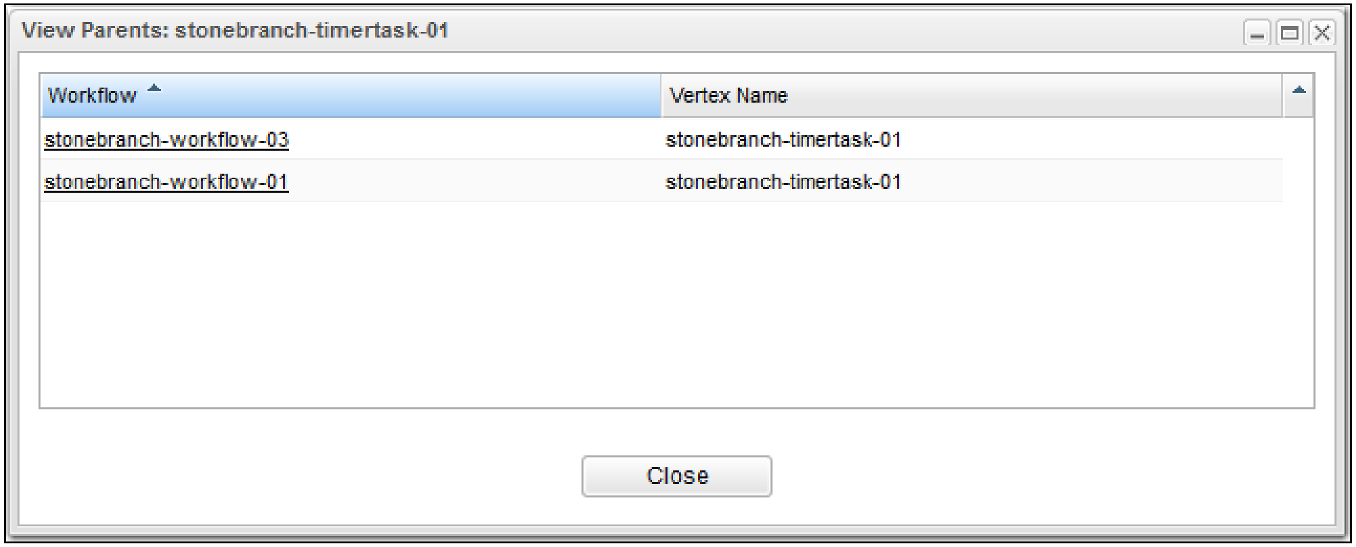
- Specified in an enabled Trigger.
- The only task specified in a disabled Trigger.

Viewing Task Parents

You can view any parent Workflow information for a task either by:

- Clicking the **View Parents** button in the Task Details
- Displaying the Action menu from the Task Details or Tasks list and then selecting View Parents.

In either case, a View Parents dialog displays:



Workflow	Vertex Name
stonebranch-workflow-03	stonebranch-timertask-01
stonebranch-workflow-01	stonebranch-timertask-01

The View Parents dialog displays, by default, two columns of information:

Workflow	Name of a Workflow that contain the task.
Vertex Name	Name of the task (or task alias) within the Workflow.

You also can display the following additional column by right-clicking either column header and selecting it from **Columns** on the Action menu:

Vertex Id	ID of the task vertex within the Workflow.

Note

⚠ It also is possible to see this parent Workflows information for a task when you are updating a task.

Additional Information

The following pages provide additional information related to the creation of tasks:

- Creating Task Actions
- Copying Tasks
- Setting Mutually Exclusive Tasks
- Creating Notes

Linux Unix Task

- Before You Begin
- Built-In Variables
- Creating a Linux/Unix Task
    - Linux/Unix Task Details
    - Linux/Unix Task Details Field Descriptions
- Viewing a Linux/Unix Task Instance
    - Linux/Unix Task Instance Details
    - Linux/Unix Task Instance Details Field Descriptions
- Running a Linux/Unix Task
- Monitoring Task Execution

Before You Begin

The Linux/Unix task allows you to run a platform-specific application on a Linux/Unix machine. To run a Linux/Unix task, you must first complete the following tasks:

- Install Universal Agent for Linux/Unix on a Linux/Unix machine.
- Launch the Agent. When the Agent connects with the Controller, it automatically creates an Agent resource definition in the database.
- Optionally, customize the Agent heartbeat and log levels, as described in Linux/Unix Agent Details Field Descriptions.

Built-In Variables

The following built-in variables can be used in a Linux/Unix task to pass data where appropriate:

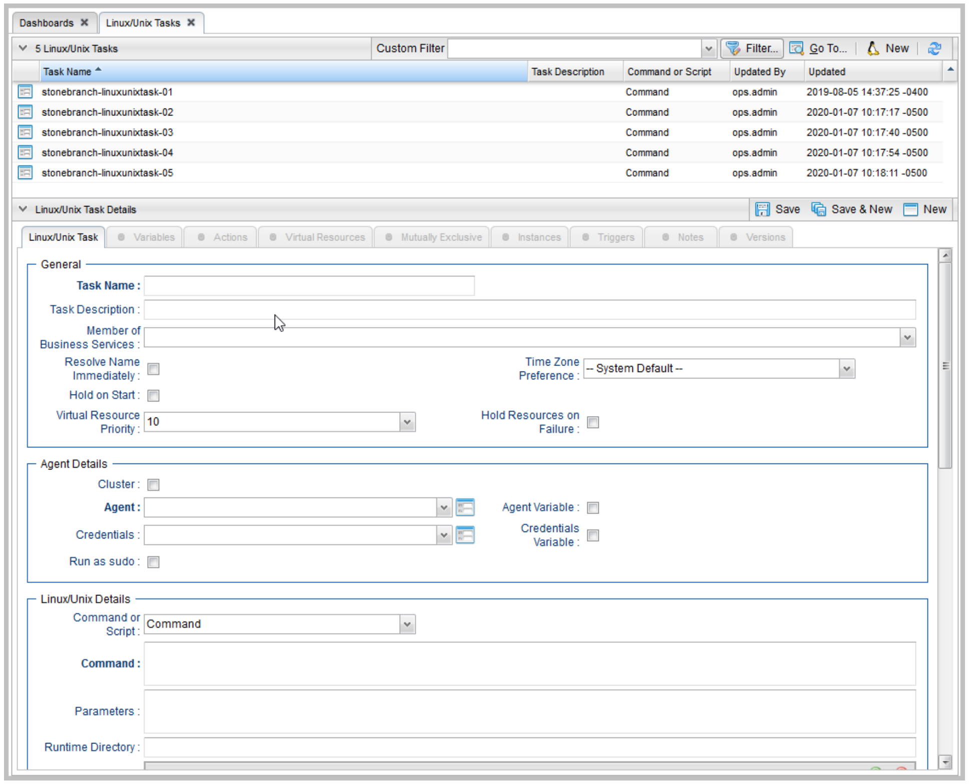
- Agent-Based Task Instance variables
- Task Instance variables

Creating a Linux/Unix Task

Step 1

From the Automation Center navigation pane, select **Tasks > Linux/Unix Tasks**. The Linux/Unix Tasks list displays a list of all currently defined Linux/Unix tasks.

Below the list, Linux/Unix Task Details for a new Linux/Unix task displays.


Dashboards
Linux/Unix Tasks
5 Linux/Unix Tasks
Custom Filter
Filter...
Go To...
New
Linux/Unix Task Details
Save
Save & New
New
Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately :
Time Zone Preference :
Hold on Start :
Virtual Resource Priority :
Hold Resources on Failure :
Agent Details
Cluster :
Agent :
Agent Variable :
Credentials :
Credentials Variable :
Run as sudo :
Linux/Unix Details
Command or Script :
Command :
Parameters :
Runtime Directory :

Task Name	Task Description	Command or Script	Updated By	Updated
stonebranch-linuxunixtask-01		Command	ops.admin	2019-08-05 14:37:25 -0400
stonebranch-linuxunixtask-02		Command	ops.admin	2020-01-07 10:17:17 -0500
stonebranch-linuxunixtask-03		Command	ops.admin	2020-01-07 10:17:40 -0500
stonebranch-linuxunixtask-04		Command	ops.admin	2020-01-07 10:17:54 -0500
stonebranch-linuxunixtask-05		Command	ops.admin	2020-01-07 10:18:11 -0500

Time Zone Preference : -- System Default --

Virtual Resource Priority : 10

Command or Script : Command

Step 2

Enter / select Details for a new Linux/Unix task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

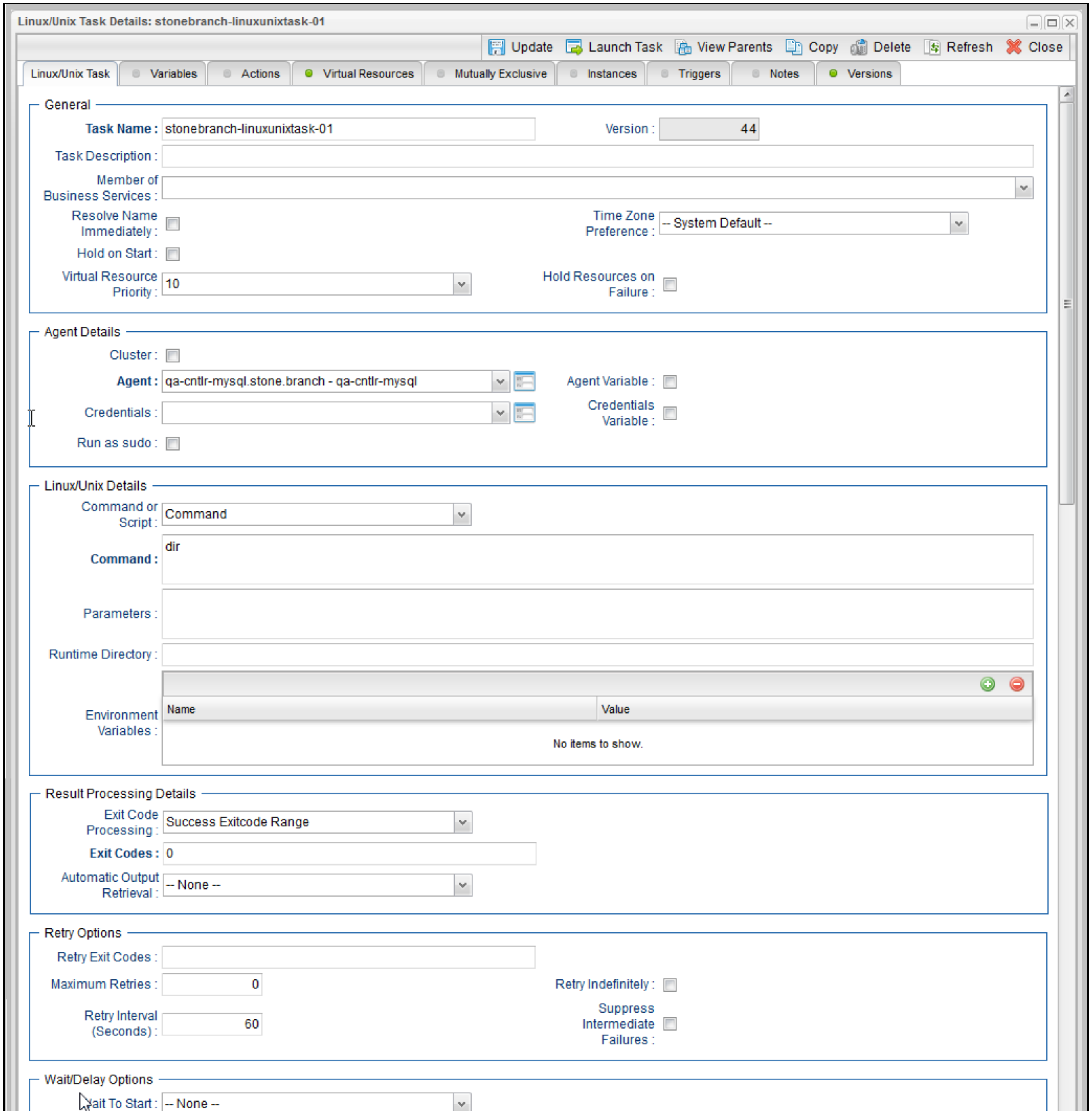
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Linux/Unix Task Details

The following Linux/Unix Task Details is for an existing Linux/Unix task.

Depending on the values that you enter / select for these fields, and whether or not the Linux/Unix task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Linux/Unix Task Details.


Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

Linux/Unix Task Details: stonebranch-linuxunixtask-01

General

Task Name : stonebranch-linuxunixtask-01
Version : 44
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Agent Details

Cluster : ☐
Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Agent Variable : ☐
Credentials :
Credentials Variable : ☐
Run as sudo : ☐

Linux/Unix Details

Command or Script : Command
Command : dir
Parameters :
Runtime Directory :
Environment Variables :

Name	Value
No items to show.	

Result Processing Details

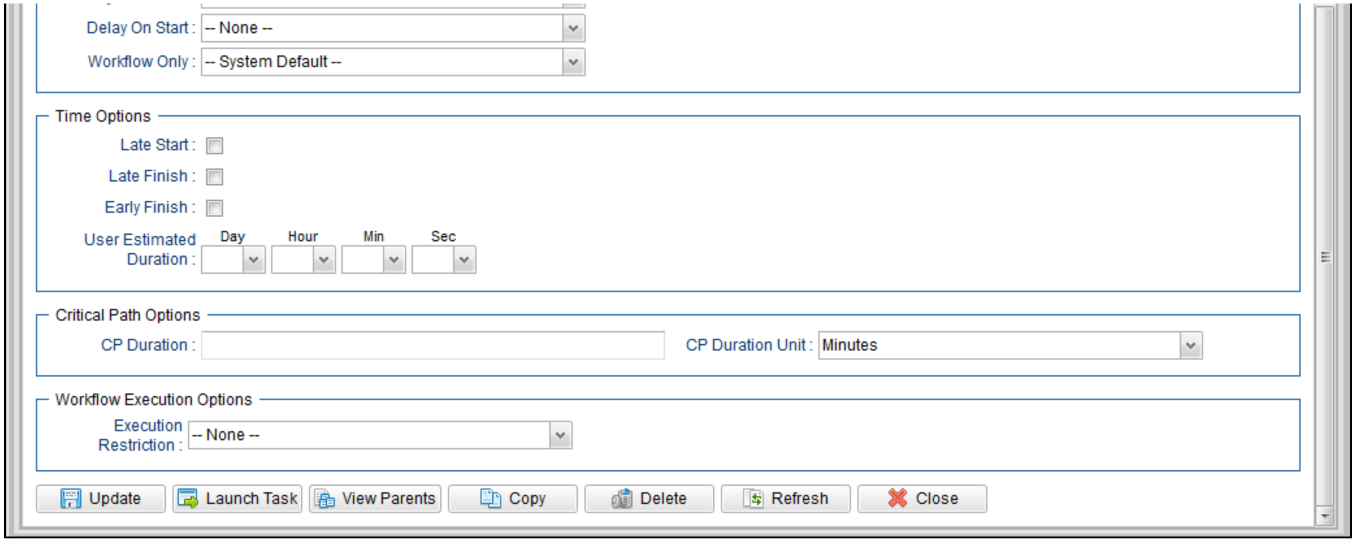
Exit Code Processing : Success Exitcode Range
Exit Codes : 0
Automatic Output Retrieval : -- None --

Retry Options

Retry Exit Codes :
Maximum Retries : 0
Retry Indefinitely : ☐
Retry Interval (Seconds) : 60
Suppress Intermediate Failures : ☐

Wait/Delay Options

Wait To Start : -- None --



Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

Linux/Unix Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Linux/Unix Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.

Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.
Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Broadcast	Displays only if Cluster is selected; Indication that selecting a Cluster Broadcast is required. Selecting Broadcast hides the Agent and Agent Cluster fields; you cannot select values for them.
Cluster Broadcast	Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.
Cluster Broadcast Variable	Indication of whether the Cluster Broadcast field is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the Cluster Broadcast as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Cluster Broadcast reference to using a Cluster Broadcast variable, you must change the **Cluster Broadcast Variable** field to **Yes** and specify the Cluster Broadcast variable in the **Cluster Broadcast Unresolved** field. Conversely, to change from using a Cluster Broadcast variable to using a Cluster Broadcast reference, you must change the **Cluster Broadcast Variable** field to **No** and specify the Cluster Broadcast reference in the **Cluster Broadcast** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.

Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Run as sudo	If Command or Script = Command; Run the command as sudo (superuser do). The Run as sudo option prefixes the command with either: • **sudo** (if a credential is not specified; that is, the command is run as root) • **sudo -u userid** (if a credential is specified, where userid = the Runtime User from the supplied credential) When using the Run as sudo option, you must grant Universal Broker userid authority to sudo to the requested userid without specifying its password; you can do this via the `sudoers` file. Please refer to your local security policy and documentation for updating the `sudoers` file.
Linux /Unix Details	This section contains assorted detailed information about the task.
Command or Script	Specifies whether a single command or a script is being executed. Options: • Command (default) • Script If the Windows/Linux Scripts Permitted Universal Controller system property is set to false: • The Command or Script field is set to Command and is read-only. • If the Command or Script field is set to Script, the field becomes modifiable so that you can change it to Command.
Script	Required if Command or Script = Script; Name of the script in the Controller database that will be executed by this task. Note If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.
Command	Required if Command or Script = Command; Command being executed on the remote machine. Variables supported.
Parameters	Any arguments needed by the program to execute properly. Variables supported.

Runtime Directory	Directory from which the application should be executed. Variables supported.
Environment Variables	Allows you to enter environment variables needed by the program to run. To add a variable, click the **+** icon and enter a **Name** and **Value**. To delete a variable, select in the list of variables and click the **-** icon. You can add a maximum of 4,000 characters for the combined Names and Values of all variables. The variable is listed in the space underneath.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: - Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. - Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. - Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. - Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. - Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: - Standard Output (STDOUT) - Standard Error (STDERR) - File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.

Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • File Attach the file specified in the Output File field. • Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. • If a **Start Line** value is not specified, the default is 1. • If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.
Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.

Retry Exit Codes	Exit code range for which an auto-retry of tasks in FAILED status will occur. Exit code ranges must be in the same format as ranges specified in the Exit Codes field. Maximum Retries must be greater than 0. If this field is empty, any exit code potentially will cause a retry. Variables are supported.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day
	Do not advance day.
	- Next Day
	Advance to the next day.
	- Next Business Day
	Advance to the next business day.
	- Sunday
	If today is not Sunday, advance to next Sunday.
	- Monday
	If today is not Monday, advance to next Monday.
	- Tuesday
	If today is not Tuesday, advance to next Tuesday.
	- Wednesday
	If today is not Wednesday, advance to next Wednesday.
	- Thursday
	If today is not Thursday, advance to next Thursday.
	- Friday
	If today is not Friday, advance to next Friday.
	- Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: - – None – - Duration - Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

Actions	Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task. Events are: • Task instance status • Exit codes • Late start • Late finish • Early finish Actions are: **Abort Action**: Abort the task if certain events occur. For details, see Abort Actions. **Email Notification**: Send an email if certain events occur. For details, see Email Notification Actions. **Set Variable**: Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow. **SNMP Notification**: Send an email if certain events occur. For details, see SNMP Notification Actions. **System Operation**: Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.
Instances	Lists all instances of the task.
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.
Notes	Lists all notes associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning.

Viewing a Linux/Unix Task Instance

When a Linux/Unix task is launched, the Controller creates a task instance record of that task.

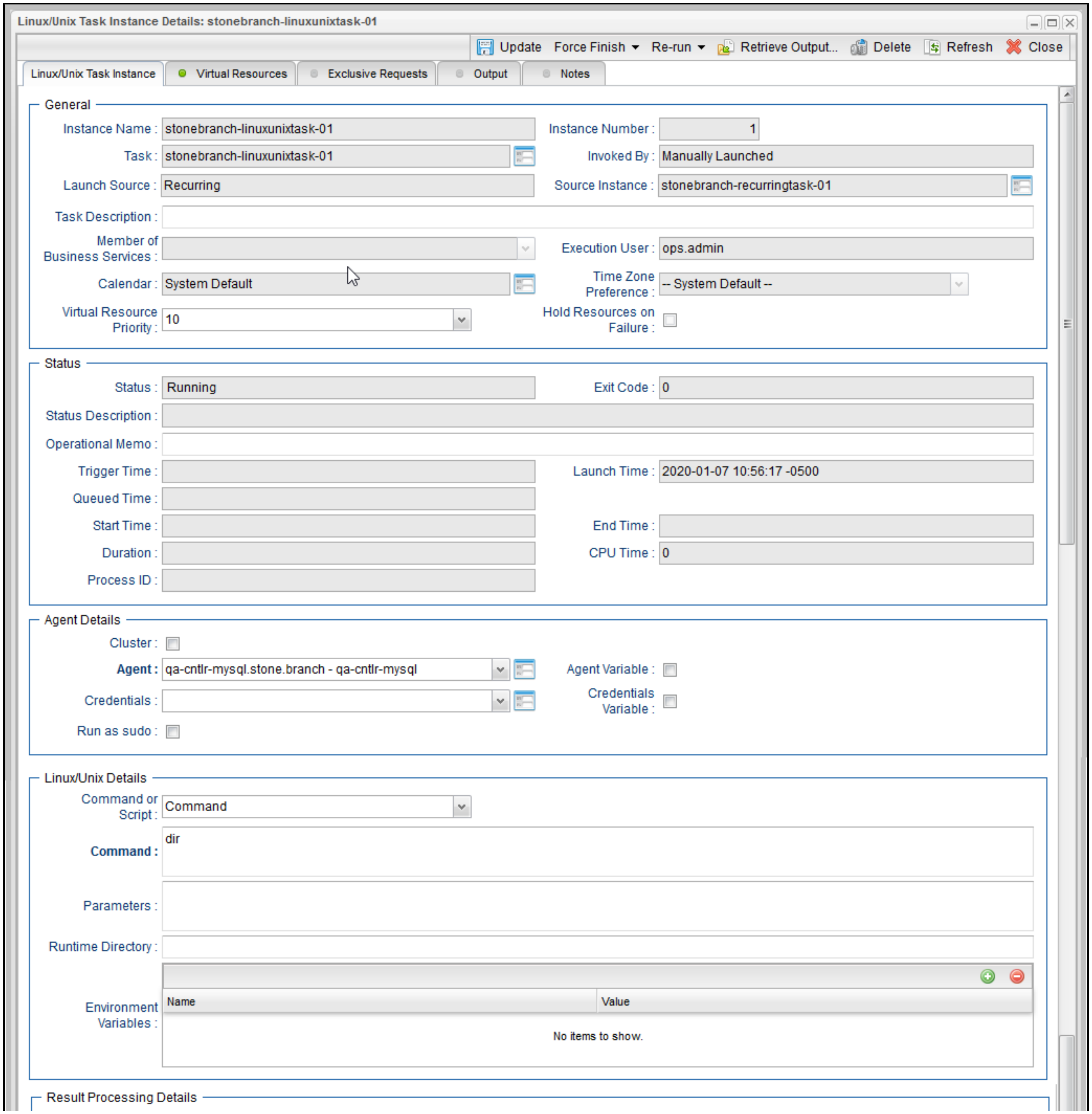
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Linux/Unix Task Details for that task
- Activity Monitor
- Task Instances list

Linux/Unix Task Instance Details

The following Linux/Unix Task Instance Details contains information on the execution of the task shown in the Linux/Unix Task Details.


Linux/Unix Task Instance Details: stonebranch-linuxunixtask-01
Update
Force Finish
Re-run
Retrieve Output...
Delete
Refresh
Close
Linux/Unix Task Instance
Virtual Resources
Exclusive Requests
Output
Notes

General

Instance Name : stonebranch-linuxunixtask-01

Instance Number : 1

Task : stonebranch-linuxunixtask-01

Invoked By : Manually Launched

Launch Source : Recurring

Source Instance : stonebranch-recurringtask-01

Task Description :

Member of Business Services :

Execution User : ops.admin

Calendar : System Default

Time Zone Preference : -- System Default --

Virtual Resource Priority : 10

Hold Resources on Failure : ☐

Status

Status : Running

Exit Code : 0

Status Description :

Operational Memo :

Trigger Time :

Launch Time : 2020-01-07 10:56:17 -0500

Queued Time :

Start Time :

End Time :

Duration :

CPU Time : 0

Process ID :

Agent Details

Cluster : ☐

Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql

Agent Variable : ☐

Credentials :

Credentials Variable : ☐

Run as sudo : ☐

Linux/Unix Details

Command or Script : Command

Command : dir

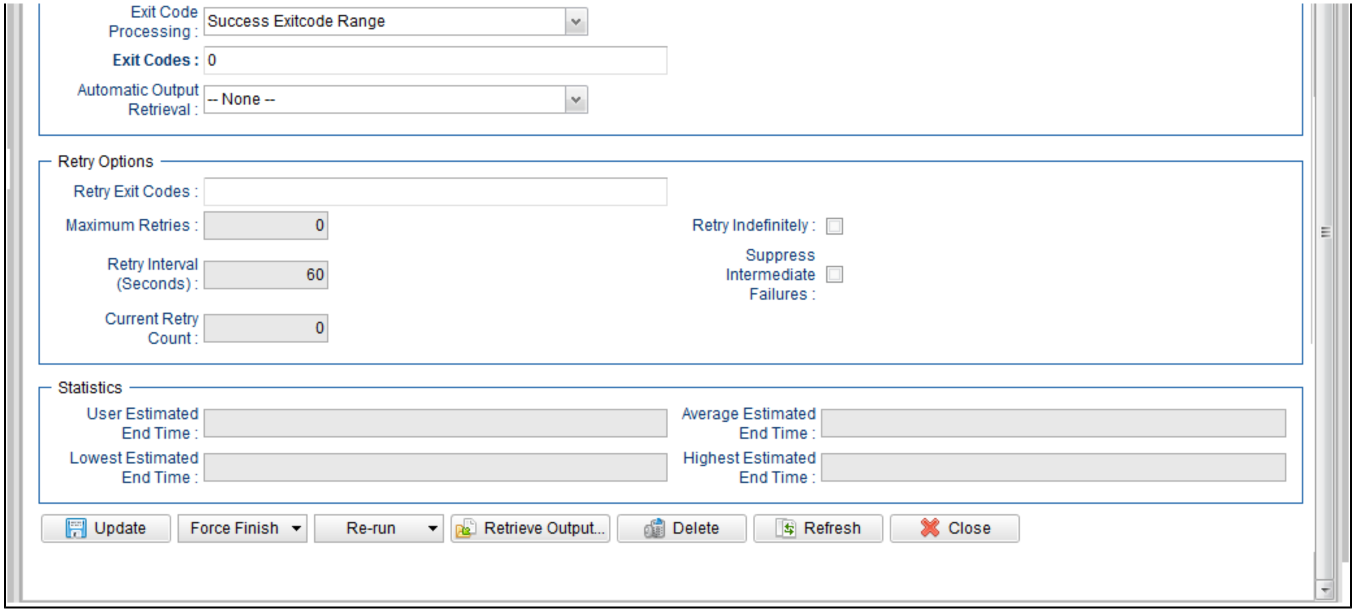
Parameters :

Runtime Directory :

Environment Variables :

Name	Value
No items to show.	

Result Processing Details



Exit Code Processing : Success Exitcode Range

Exit Codes : 0

Automatic Output Retrieval : -- None --

Retry Options

Retry Exit Codes :

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Current Retry Count : 0

Statistics

User Estimated End Time :

Average Estimated End Time :

Lowest Estimated End Time :

Highest Estimated End Time :

Linux/Unix Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Linux/Unix Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.

Invoked by	System-supplied; how the task instance was launched. Options: - Trigger: (Trigger Name) Instance was launched by the named trigger. - Workflow: (Workflow Name) Instance was launched by the named workflow. - Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Launch Source	System-supplied; Source from which this Recurring task was launched. Options: - Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. - Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. - Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. - Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: - – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. - Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. - Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)

Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
CPU Time	System-supplied; amount of CPU time the task took to run.
Process ID	System-supplied; ID of the process that was launched.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.

Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.
Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.

Run as sudo	If Command or Script = Command; Run the command as sudo (superuser do). The Run as sudo option prefixes the command with either: • **sudo** (if a credential is not specified; that is, the command is run as root) • **sudo -u userid** (if a credential is specified, where userid = the Runtime User from the supplied credential) When using the Run as sudo option, you must grant Universal Broker userid authority to sudo to the requested userid without specifying its password; you can do this via the `sudoers` file. Please refer to your local security policy and documentation for updating the `sudoers` file.
Linux /Unix Details	This section contains assorted detailed information about the task instance.
Command or Script	Specifies whether a single command or a script is being executed. Options: • Command (default) • Script If the Windows/Linux Scripts Permitted Universal Controller system property is set to false: • The Command or Script field is set to Command and is read-only. • If the Command or Script field is set to Script, the field becomes modifiable so that you can change it to Command.
Script	Required if Command or Script = Script; Name of the script in the Controller database that will be executed by this task. Note ⚠ If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.
Command	Required if Command or Script = Command; Command being executed on the remote machine. Variables supported.
Parameters	Any arguments needed by the program to execute properly. Variables supported.
Runtime Directory	Directory from which the application should be executed. Variables supported.
Environment Variables	Allows you to enter environment variables needed by the program to run. To add a variable, click the **+** icon and enter a **Name** and **Value**. To delete a variable, select in the list of variables and click the **-** icon. You can add a maximum of 4,000 characters for the combined Names and Values of all variables. The variable is listed in the space underneath.

Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Unable to render {include} The included page could not be found.
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: - Standard Output (STDOUT) - Standard Error (STDERR) - File
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported. Note ⚠ If you are updating a task instance, the Exit Codes field must be resolved; you cannot change the value to a variable.
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.

Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: - None Do not attach any output to the task instance record. - Standard Output Attach all standard output. - Standard Error Attach standard error output. - File Attach the file specified in the Output File field. - Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. - If a **Start Line** value is not specified, the default is 1. - If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.
Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.

Retry Exit Codes	Exit code range for which an auto-retry of tasks in FAILED status will occur. Exit code ranges must be in the same format as ranges specified in the Exit Codes field. Maximum Retries must be greater than 0. If this field is empty, any exit code potentially will cause a retry. Variables are supported. Note If you are updating a task instance, the Retry Exit Codes field must be resolved; you cannot change the value to a variable. .
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.

Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day Do not advance day.
	- Next Day Advance to the next day.
	- Next Business Day Advance to the next business day.
	- Sunday If today is not Sunday, advance to next Sunday.
	- Monday If today is not Monday, advance to next Monday.
	- Tuesday If today is not Tuesday, advance to next Tuesday.
	- Wednesday If today is not Wednesday, advance to next Wednesday.
	- Thursday If today is not Thursday, advance to next Thursday.
	- Friday If today is not Friday, advance to next Friday.
	- Saturday If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.

Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: - – None – - Duration - Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.

Output	Displays output generated from the process, if any, based on specifications provided by the user in the Automatic Output Retrieval fields in the task Details. If automatic output retrieval was not available or was not selected, output can be obtained by clicking the Retrieve Output button.
Notes	Lists all notes associated with this record.

Running a Linux/Unix Task

You can run a Linux/Unix task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the Linux/Unix tasks list or Linux/Unix Task Details Action menu.
- As part of a Workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Windows Task

- Before You Begin
- Built-In Variables
- Creating a Windows Task
    - Windows Task Details
    - Windows Task Details Field Descriptions
- Viewing a Windows Task Instance
    - Windows Task Instance Details
    - Windows Task Instance Details Field Descriptions
- Running a Windows Task
- Monitoring Task Execution

Before You Begin

The Windows task allows you to run a platform-specific application on a Windows machine. To run a Windows task, you must first complete the following tasks:

- Install Universal Agent for Windows on a Windows machine.
- Launch the Agent. When the Agent connects with the Controller, it automatically creates an Agent resource definition in the database.
- Optionally, customize the Agent heartbeat and log levels, as described in Windows Agent Details Field Descriptions.

Built-In Variables

The following built-in variables can be used in a Windows task to pass data where appropriate:

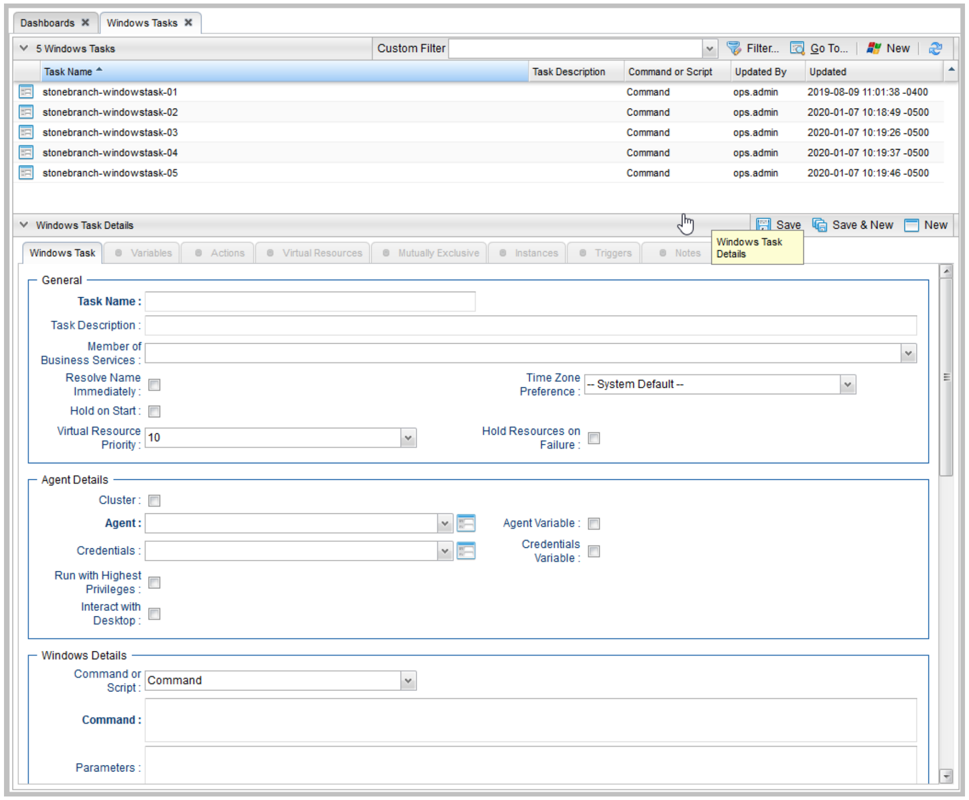
- Agent-Based Task Instance variables
- Task Instance variables

Creating a Windows Task

Step 1

From the Automation Center navigation pane, select **Tasks > Windows Tasks**. The Windows Tasks list displays a list of all currently defined Windows tasks.

Below the list, Windows Task Details for a new Windows task displays.



Dashboards
Windows Tasks
5 Windows Tasks
Custom Filter
Filter...
Go To...
New
Windows Task Details
Save
Save & New
New
Windows Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
General
Agent Details
Windows Details

Task Name	Task Description	Command or Script	Updated By	Updated
stonebranch-windowstask-01		Command	ops.admin	2019-08-09 11:01:38 -0400
stonebranch-windowstask-02		Command	ops.admin	2020-01-07 10:18:49 -0500
stonebranch-windowstask-03		Command	ops.admin	2020-01-07 10:19:26 -0500
stonebranch-windowstask-04		Command	ops.admin	2020-01-07 10:19:37 -0500
stonebranch-windowstask-05		Command	ops.admin	2020-01-07 10:19:46 -0500

General

Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Agent Details

Cluster : ☐
Agent :
Agent Variable : ☐
Credentials :
Credentials Variable : ☐
Run with Highest Privileges : ☐
Interact with Desktop : ☐

Windows Details

Command or Script : Command
Command :
Parameters :

Step 2

Enter/select Details for a new Windows task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

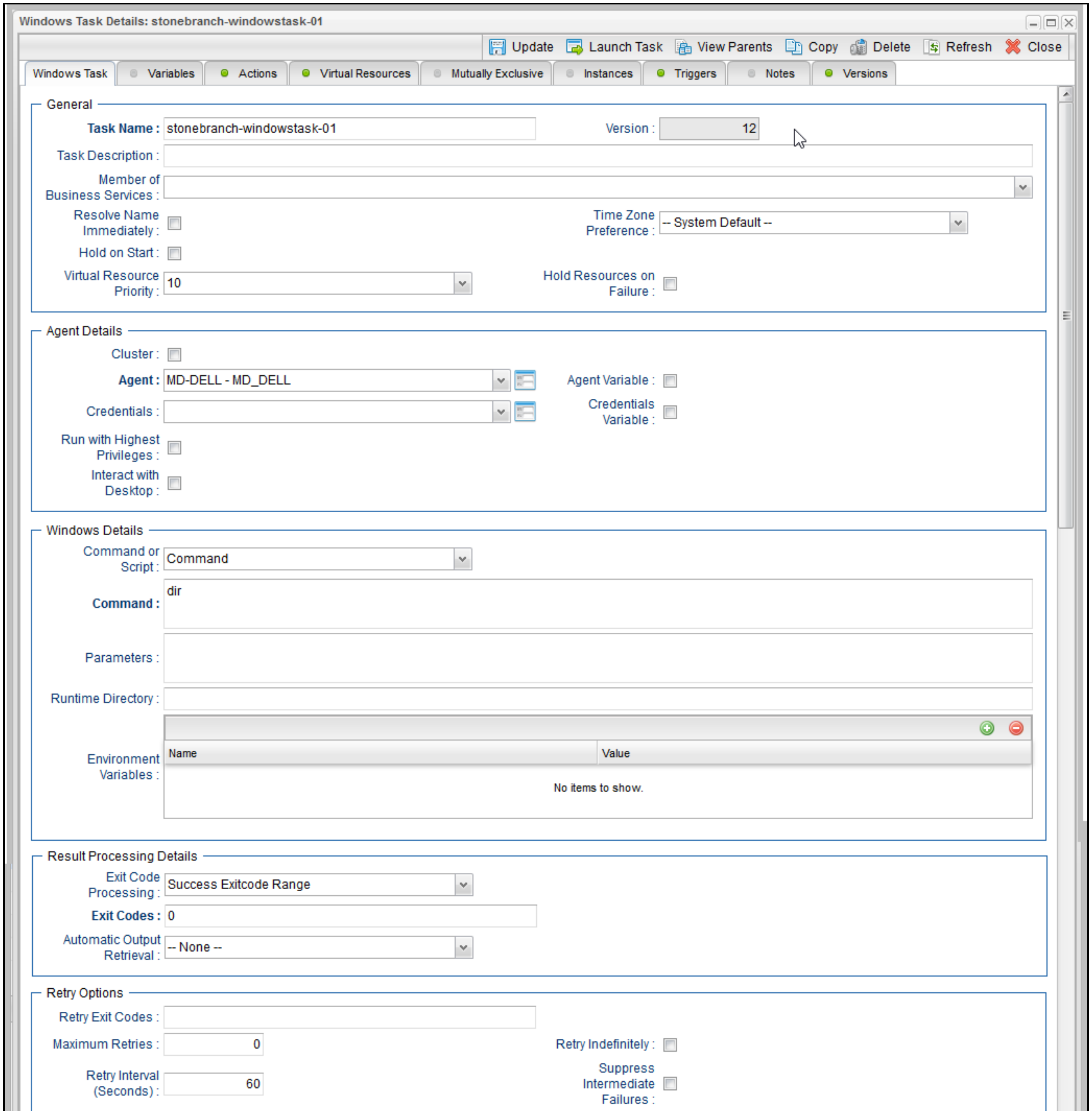
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Windows Task Details

The following Windows Task Details is for an existing Windows task.

Depending on the values that you enter / select for these fields, and whether or not the Windows task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Windows Task Details.


Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Windows Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

Windows Task Details: stonebranch-windowstask-01

General

Task Name : stonebranch-windowstask-01
Version : 12
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Agent Details

Cluster : ☐
Agent : MD-DELL - MD_DELL
Agent Variable : ☐
Credentials :
Credentials Variable : ☐
Run with Highest Privileges : ☐
Interact with Desktop : ☐

Windows Details

Command or Script : Command
Command : dir
Parameters :
Runtime Directory :
Environment Variables :

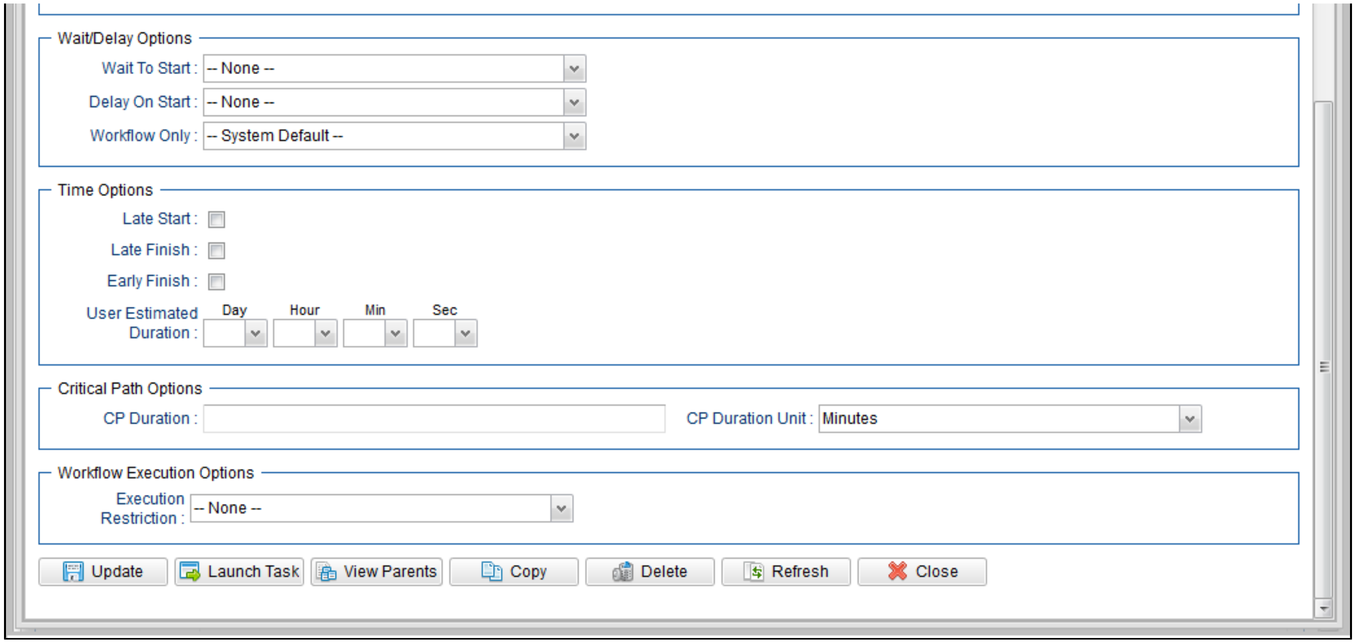
Name	Value
No items to show.	

Result Processing Details

Exit Code Processing : Success Exitcode Range
Exit Codes : 0
Automatic Output Retrieval : -- None --

Retry Options

Retry Exit Codes :
Maximum Retries : 0
Retry Indefinitely : ☐
Retry Interval (Seconds) : 60
Suppress Intermediate Failures : ☐



Wait/Delay Options

Wait To Start : -- None --

Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

Windows Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Windows Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.

Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.

Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.
Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Broadcast	Displays only if Cluster is selected; Indication that selecting a Cluster Broadcast is required. Selecting Broadcast hides the Agent and Agent Cluster fields; you cannot select values for them.
Cluster Broadcast	Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.
Cluster Broadcast Variable	Indication of whether the Cluster Broadcast field is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the Cluster Broadcast as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Cluster Broadcast reference to using a Cluster Broadcast variable, you must change the **Cluster Broadcast Variable** field to **Yes** and specify the Cluster Broadcast variable in the **Cluster Broadcast Unresolved** field. Conversely, to change from using a Cluster Broadcast variable to using a Cluster Broadcast reference, you must change the **Cluster Broadcast Variable** field to **No** and specify the Cluster Broadcast reference in the **Cluster Broadcast** field.

Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Run with Highest Privileges	This option must be enabled in order to execute the task using an elevated privileges token, rather than one subject to User Account Control (UAC) restrictions. An elevated token allows a process to execute with all the privileges available to its specified credentials. For example, a task executed with an administrative account will behave as though it received permission via a UAC dialog to perform a privileged operation. This option will **not** give a user account privileges that have are not already granted to it. For example, taking ownership of a file is a privileged operation by default. A task will still fail even with this option selected if it is run with a regular user account that has not been granted the ability to change file ownership. Note This option only will affect tasks executed on Windows systems that support User Account Control (UAC). It will have no affect on tasks run on Windows releases prior to Vista (for example, Windows XP, Server 2003).
Interact with Desktop	This option must be enabled for a task that runs an application with a GUI requiring some manual actions from a user (for example, clicking buttons or entering values). Note When using this option to display GUI applications on any version of Windows that enforces session 0 desktop isolation (that is, Windows Vista and later), the GUI will only be accessible from the interactive console session. Further, the task will execute using the credentials of the user logged into that session. This means that any GUI-based application executed via a Windows task will not be visible from a remote desktop session. It will be visible only from console of the interactive session that exists on the system itself (that is, the session you would see from a monitor attached directly to the Windows machine or by logging in via a VM's host UI).
Create Console	If Interact with Desktop is enabled; Allocates a new console for the process, rather than having it inherit one.
Windows Details	This section contains assorted detailed information about the task instance.

Command or Script	Specifies whether a single command or a script is being executed. Options: • Command (default) • Script If the Windows/Linux Scripts Permitted Universal Controller system property is set to false: • The Command or Script field is set to Command and is read-only. • If the Command or Script field is set to Script, the field becomes modifiable so that you can change it to Command. Note For both command-based tasks that call a **.vbs/.js** file directly, and script-based tasks that also rely on the systems association with file extension, GUI-based **wscript.exe** is associated with the **vbs** and **js** file extensions. Without explicitly calling one or the other, the Controller would use **wscript.exe**. The Agent system may need to be adjusted to properly use the Windows Scripting Host from the scheduler/agent environment. The following command can be used to set the default script host to **cscript.exe**: `C:\tmp>cscript //h:cscript //s`
Command	Required if Command or Script = Command; Command being executed on the remote machine. Variables supported.
Script	Required if Command or Script = Script; Name of the script in the Controller database that will be executed by this task. Note If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.
Parameters	Any arguments needed by the program to execute properly. Variables supported.
Runtime Directory	Directory from which the application should be executed. Variables supported.
Environment Variables	Allows you to enter environment variables needed by the program to run. To add a variable, click the **+** icon and enter a **Name** and **Value**. To delete a variable, select in the list of variables and click the **-** icon. You can add a maximum of 4,000 characters for the combined Names and Values of all variables. The variable is listed in the space underneath.
Result Processing Details	This section contains assorted detailed information about result processing for this task.

Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. • Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.

Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: - None Do not attach any output to the task instance record. - Standard Output Attach all standard output. - Standard Error Attach standard error output. - File Attach the file specified in the Output File field. - Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. - If a **Start Line** value is not specified, the default is 1. - If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.
Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.

Retry Exit Codes	Exit code range for which an auto-retry of tasks in FAILED status will occur. Exit code ranges must be in the same format as ranges specified in the Exit Codes field. Maximum Retries must be greater than 0. If this field is empty, any exit code potentially will cause a retry. Variables are supported.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day
	Do not advance day.
	- Next Day
	Advance to the next day.
	- Next Business Day
	Advance to the next business day.
	- Sunday
	If today is not Sunday, advance to next Sunday.
	- Monday
	If today is not Monday, advance to next Monday.
	- Tuesday
	If today is not Tuesday, advance to next Tuesday.
	- Wednesday
	If today is not Wednesday, advance to next Wednesday.
	- Thursday
	If today is not Thursday, advance to next Thursday.
	- Friday
	If today is not Friday, advance to next Friday.
	- Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: - – None – - Duration - Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: - Seconds - Minutes - Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: - -- None -- No restriction for this task. - Run Restriction for when this task will be run. - Skip Restriction for when this task will be skipped. - Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: - – None – No period of restriction for this task. - Before Restriction is valid if the date is before the Before Date value. - After Restriction is valid if the date is after the After Date value. - Span Restriction is valid if the date is before the Before Date value and after After Date value. - On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note ⚠ You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

<table>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:
<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.
If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

Viewing a Windows Task Instance

When a Windows task is launched, the Controller creates a task instance record of that task.

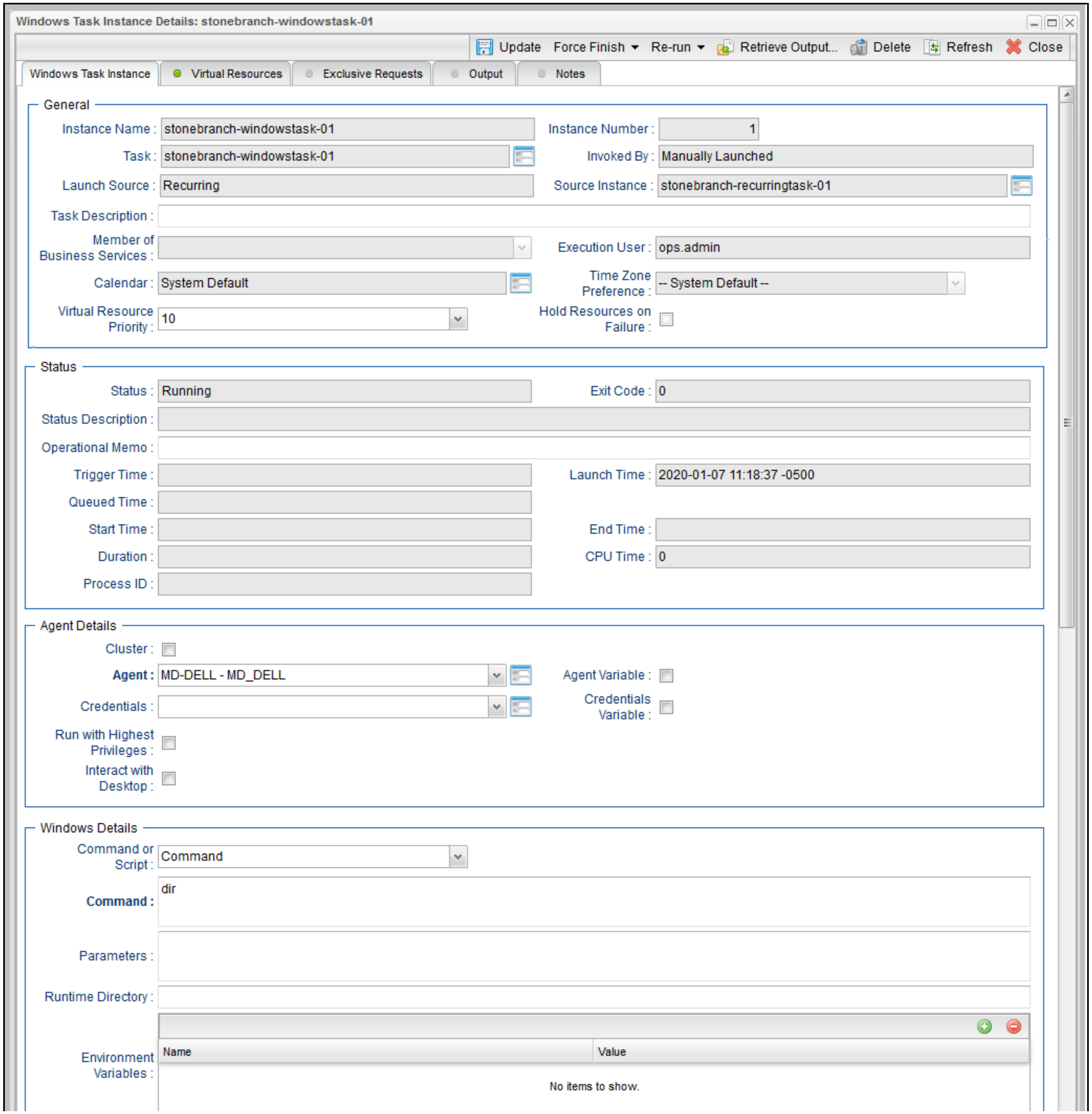
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Windows Task Details for that task
- Activity Monitor
- Task Instances list

Windows Task Instance Details

The following Windows Task Instance Details contains information on the execution of the task shown in the Windows Task Details.


Update
Force Finish
Re-run
Retrieve Output...
Delete
Refresh
Close
Windows Task Instance
Virtual Resources
Exclusive Requests
Output
Notes

Windows Task Instance Details: stonebranch-windowstask-01

General

Instance Name : stonebranch-windowstask-01
Instance Number : 1
Task : stonebranch-windowstask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Running
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-07 11:18:37 -0500
Queued Time :
Start Time :
End Time :
Duration :
CPU Time : 0
Process ID :

Agent Details

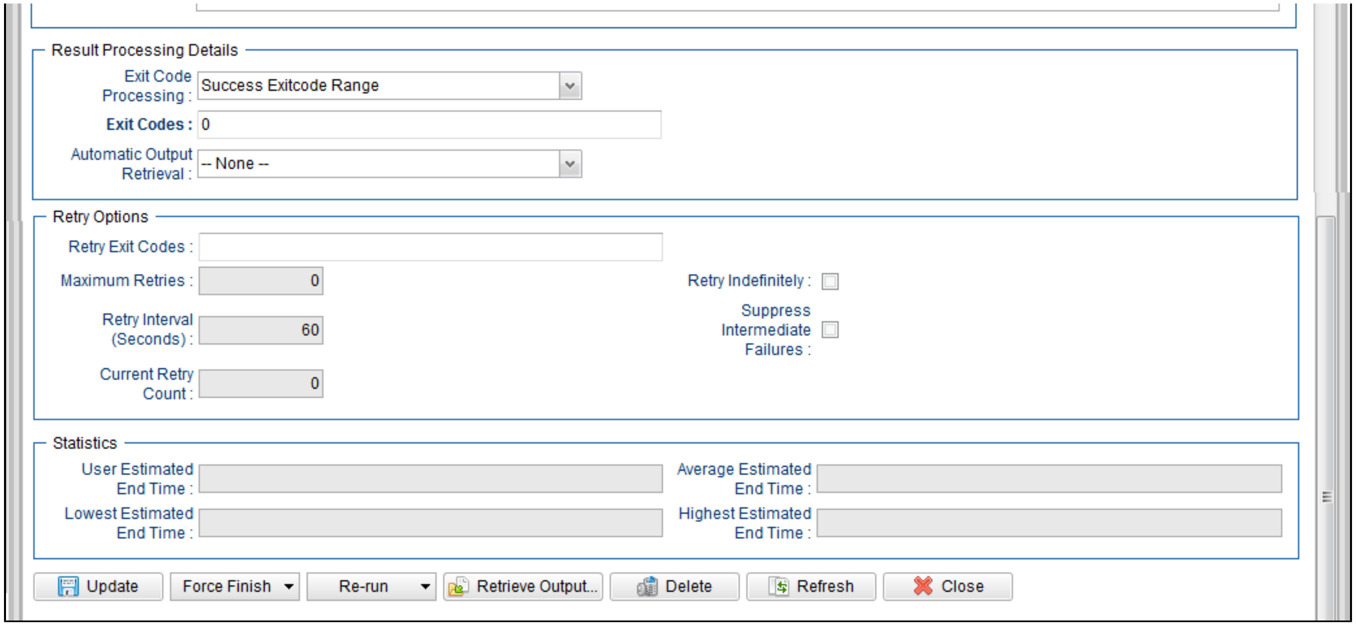
Cluster : ☐
Agent : MD-DELL - MD_DELL
Agent Variable : ☐
Credentials :
Credentials Variable : ☐
Run with Highest Privileges : ☐
Interact with Desktop : ☐

Windows Details

Command or Script : Command
Command : dir
Parameters :
Runtime Directory :
Environment Variables :

Name	Value

No items to show.



Result Processing Details

Exit Code Processing : Success Exitcode Range

Exit Codes : 0

Automatic Output Retrieval : -- None --

Retry Options

Retry Exit Codes :

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Current Retry Count : 0

Statistics

User Estimated End Time :

Average Estimated End Time :

Lowest Estimated End Time :

Highest Estimated End Time :

Windows Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Windows Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.

Invoked by	System-supplied; how the task instance was launched. Options: - Trigger: (Trigger Name) Instance was launched by the named trigger. - Workflow: (Workflow Name) Instance was launched by the named workflow. - Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Launch Source	System-supplied; Source from which this Recurring task was launched. Options: - Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. - Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. - Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. - Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)

Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
CPU Time	System-supplied; amount of CPU time the task took to run.
Process ID	System-supplied; ID of the process that was launched.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.

Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.
Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.

Run with Highest Privileges	This option must be enabled in order to execute the task using an elevated privileges token, rather than one subject to User Account Control (UAC) restrictions. An elevated token allows a process to execute with all the privileges available to its specified credentials. For example, a task executed with an administrative account will behave as though it received permission via a UAC dialog to perform a privileged operation. This option will **not** give a user account privileges that have are not already granted to it. For example, taking ownership of a file is a privileged operation by default. A task will still fail even with this option selected if it is run with a regular user account that has not been granted the ability to change file ownership. Note ⚠ This option only will affect tasks executed on Windows systems that support User Account Control (UAC). It will have no affect on tasks run on Windows releases prior to Vista (for example, Windows XP, Server 2003).
Interact with Desktop	This option must be enabled for a task that runs an application with a GUI requiring some manual actions from a user (for example, clicking buttons or entering values). Note ⚠ When using this option to display GUI applications on any version of Windows that enforces session 0 desktop isolation (that is, Windows Vista and later), the GUI will only be accessible from the interactive console session. Further, the task will execute using the credentials of the user logged into that session. This means that any GUI-based application executed via a Windows task will not be visible from a remote desktop session. It will be visible only from console of the interactive session that exists on the system itself (that is, the session you would see from a monitor attached directly to the Windows machine or by logging in via a VM's host UI).
Create Console	If Interact with Desktop is enabled; Allocates a new console for the process, rather than having it inherit one.
Windows Details	This section contains assorted detailed information about the task instance.
Command or Script	Specifies whether a single command or a script is being executed. Options: • Command (default) • Script If the Windows/Linux Scripts Permitted Universal Controller system property is set to false: • The Command or Script field is set to Command and is read-only. • If the Command or Script field is set to Script, the field becomes modifiable so that you can change it to Command. Note ⚠ For both command-based tasks that call a **.vbs/.js** file directly, and script-based tasks that also rely on the systems association with file extension, GUI-based **wscript.exe** is associated with the **vbs** and **js** file extensions. Without explicitly calling one or the other, the Controller would use **wscript.exe**. The Agent system may need to be adjusted to properly use the Windows Scripting Host from the scheduler/agent environment. The following command can be used to set the default script host to **cscript.exe**: `C:\tmp>cscript //h:cscript //s`
Command	Required if Command or Script = Command; Command being executed on the remote machine. Variables supported.

Script	Required if Command or Script = Script; Name of the script in the Controller database that will be executed by this task. Note If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.
Parameters	Any arguments needed by the program to execute properly. Variables supported.
Runtime Directory	Directory from which the application should be executed. Variables supported.
Environment Variables	Allows you to enter environment variables needed by the program to run. To add a variable, click the **+** icon and enter a **Name** and **Value**. To delete a variable, select in the list of variables and click the **-** icon. You can add a maximum of 4,000 characters for the combined Names and Values of all variables. The variable is listed in the space underneath.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. • Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File

Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • File Attach the file specified in the Output File field. • Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. • If a **Start Line** value is not specified, the default is 1. • If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.

Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.
Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.
Retry Exit Codes	Exit code range for which an auto-retry of tasks in FAILED status will occur. Exit code ranges must be in the same format as ranges specified in the Exit Codes field. Maximum Retries must be greater than 0. If this field is empty, any exit code potentially will cause a retry. Variables are supported. Note ⚠ If you are updating a task instance, the Retry Exit Codes field must be resolved; you cannot change the value to a variable. .
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.

Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	IfWait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (`ops_exclusive_order`) for this task instance.

Output	Displays output generated from the process, if any, based on specifications provided by the user in the Automatic Output Retrieval fields in the task Details. If automatic output retrieval was not available or was not selected, output can be obtained by clicking the Retrieve Output button.
Notes	Lists all notes associated with this record.

Running a Windows Task

You can run a Windows task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the Windows tasks list or Windows Task Details Action menu.
- As part of a Workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

z/OS Task

Information on z/OS tasks is contained on the following pages:

- Creating and Running a z/OS Task
- Special Processing on z/OS Tasks
- Creating Step Conditions
- Creating Step Actions
- Creating Restart Criteria

Creating and Running a z/OS Task

- Before You Begin
- Built-In Variables
- Creating a z/OS Task
    - z/OS Task Details
    - z/OS Task Details Field Descriptions
- Viewing a z/OS Task Instance
    - z/OS Task Instance Details
    - z/OS Task Instance Details Field Descriptions
- Running a z/OS Task
- Monitoring Task Execution

Before You Begin

The z/OS task allow you to run a platform-specific application on a z/OS machine. To run a z/OS task, you must first complete the following tasks:

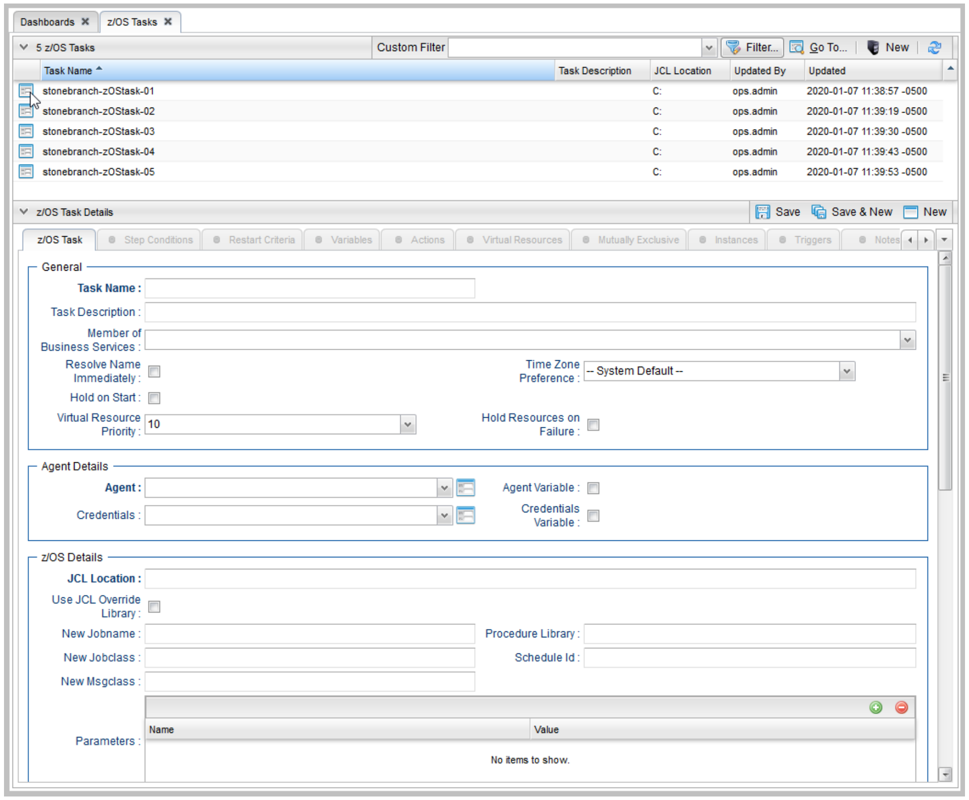
- Install Universal Agent for z/OS on a z/OS machine.
- Launch the Agent. When the Agent connects with the Universal Controller, it automatically creates an Agent resource definition in the database.
- Optionally, customize the Agent heartbeat and log levels, as described in z/OS Agent Details Field Descriptions.

Built-In Variables

The following built-in variables can be used in a z/OS task to pass data where appropriate:

- Agent-Based Task Instance variables
- Task Instance variables
- z/OS Task Instance variables

Creating a z/OS Task

Step 1	From the Automation Center navigation pane, select **Tasks > z/OS Tasks**. The z/OS Tasks list displays a list of all currently defined z/OS tasks. Below the list, z/OS Task Details for a new z/OS task displays. 
Step 2	Enter/select Details for a new z/OS task, using the field descriptions below as a guide. • Required fields display in **boldface**. • Default values for fields, if available, display automatically. To display more of the Details fields on the screen, you can either: • Use the scroll bar. • Temporarily hide the list above the Details. • Click the **New** button above the list to display a pop-up version of the Details.
Step 3	Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

5 z/OS Tasks

Task Name	Task Description	JCL Location	Updated By	Updated
stonebranch-zOStask-01		C:	ops.admin	2020-01-07 11:38:57 -0500
stonebranch-zOStask-02		C:	ops.admin	2020-01-07 11:39:19 -0500
stonebranch-zOStask-03		C:	ops.admin	2020-01-07 11:39:30 -0500
stonebranch-zOStask-04		C:	ops.admin	2020-01-07 11:39:43 -0500
stonebranch-zOStask-05		C:	ops.admin	2020-01-07 11:39:53 -0500

Time Zone Preference : -- System Default --

Virtual Resource Priority : 10

Parameters : No items to show.

Note

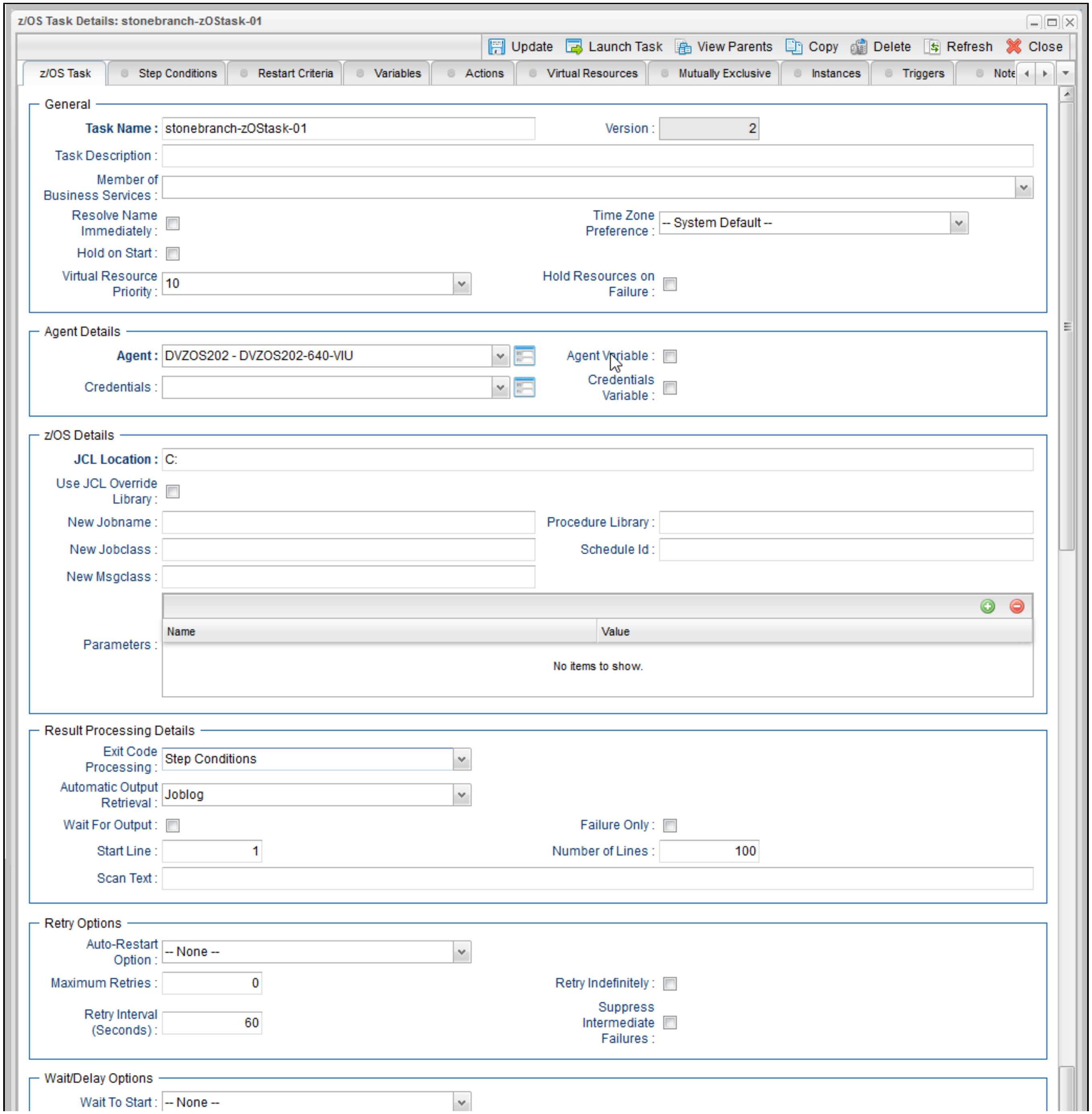
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

z/OS Task Details

The following z/OS Task Details is for an existing Linux/Unix task.

Depending on the values that you enter / select for these fields, and whether or not the z/OS task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the z/OS Task Details.


z/OS Task Details: stonebranch-zOStask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
z/OS Task
Step Conditions
Restart Criteria
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Note

General

Task Name : stonebranch-zOStask-01
Version : 2
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Agent Details

Agent : DVZOS202 - DVZOS202-640-VIU
Agent Variable : ☐
Credentials :
Credentials Variable : ☐

z/OS Details

JCL Location : C:
Use JCL Override Library : ☐
New Jobname :
Procedure Library :
New Jobclass :
Schedule Id :
New Msgclass :
Parameters :

Name	Value
No items to show.	

Result Processing Details

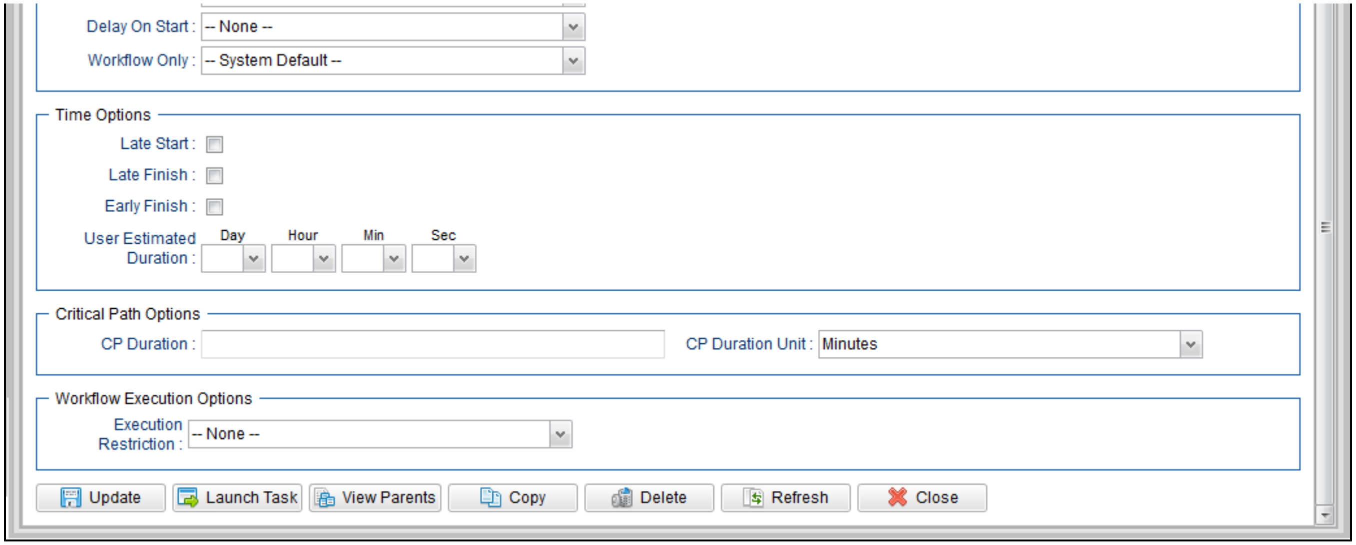
Exit Code Processing : Step Conditions
Automatic Output Retrieval : Joblog
Wait For Output : ☐
Failure Only : ☐
Start Line : 1
Number of Lines : 100
Scan Text :

Retry Options

Auto-Restart Option : -- None --
Maximum Retries : 0
Retry Indefinitely : ☐
Retry Interval (Seconds) : 60
Suppress Intermediate Failures : ☐

Wait/Delay Options

Wait To Start : -- None --



Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

z/OS Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the z/OS Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: - – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. - Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. - Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.

Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
z/OS Details	This section contains assorted detailed information about the task.
JCL Location	File and member name containing the JCL script. When you are using the JCL_LIBRARY feature, you can substitute the name of the library with a string starting with "&", that names the library specified in the uags.conf file with the JCL_library definitions. For example, the name of a job might look like the following: `&PRODLIB(PAYJOB01)`
Use JCL Override Library	Allows the task to work with a JCL override library on the target system. If this option is selected, the Agent will check the JCL override path (specified in JCL Override Location) before submitting the job from JCL Location. If a JCL member is found at the override path, the job is submitted from there. Otherwise, the Agent will look to the JCL Location path for submission. The task instance will display the actual path that was used for job submission in Submitted JCL Location.
JCL Override Location	Required if Use JCL Override Library is selected; Specifies the file and member name potentially containing an override JCL script. The Agent will check this location for JCL before looking in the standard JCL Location. If JCL is found in this location, the job will be submitted from there. If JCL is not found in this location, the Agent will submit the job from the standard JCL Location. Missing override JCL is not considered an error condition. As with JCL Location, when you are using the JCL_LIBRARY feature, you can substitute the name of the library with a string starting with "&" that names the library specified in the **`uags.conf`** file with the JCL_library definitions.
Delete Override JCL	Optional if Use JCL Override Library is selected; Allows the task to define criteria that will control the automated clean-up of the override JCL. If this option is not selected, the Controller and Agent will take no action to delete the override JCL from the target system.

Override Instance Count for Deletion	Required if Delete Override JCL is selected; Specifies the number of successful override instances that must occur before the override JCL library member is deleted. When the deletion criteria has been satisfied, the Controller will instruct the Agent to delete the member specified in JCL Override Location. An override instance is considered successful only if the ending state in the controller is SUCCESS. Note Manual resubmissions of a task instance do not increment the tracked number of successful override instances that go towards satisfying the deletion criteria. If a task is not submitted from the override location (that is, no override member was found), the task's "successful override instance count" is reset to 0.
Last Override Deletion	If Delete Override JCL is selected; system-supplied. Displays after the specified override JCL member is deleted. The date and time the last override JCL deletion occurred.
Number of Override Instances	If Delete Override JCL is selected; Read only; system-supplied. Indicates the number of successful override instances that have occurred for this task. This number is checked against the deletion criteria to determine when the override JCL member should be deleted. Note This number is automatically reset to 0 by the system if a task instance does not submit from override JCL (that is, no override member was found).
New Jobname	Job name that will replace the one in the JCL member. This allows you to override the value in your JCL from the Controller without having to modify the JCL. This value should be validated before the job is launched to avoid JES start failures. The syntax of a job name is: • 1-8 characters • Upper case • Name must start with an alphabetic or $, #, @ character. • Remaining characters are alphanumeric or $, #, @. • No spaces or tabs.
New Jobclass	New Jobclass to replace the one in the JCL member. This allows you to override the value in your JCL from the Controller without having to modify the JCL.
New Msgclass	New MSGCLASS to replace the one in the JCL member. This allows you to override the value in your JCL from the Controller without having to modify the JCL.
Procedure Library	The PROCLIB field allows for defining a JES2 PROCLIB control statement in the job JCL. For example, a PROCLIB value of PROC01 will result in the following JES2 control statement generated in the job JCL: `/*JESPARM PROCLIB=PROC001` The PROCLIB value must refer to a ddname defined in the JES2 procedure. Refer to IBM MVS JCL Reference for more information regarding the JES2 PROCLIB control statement.

Schedule ID	CA7 Schedule ID; for CA7 toleration only (see CA7/CA11 Toleration).
Parameters	Displays a list of parameters that will be inserted into the JCL. Each parameter consists of a Name and a Value. You can enter as many parameters as needed. To add a parameter, click the **+** icon; add a Name and Value, and click the **Update** button. To delete a parameter, click the parameter on the list, the **-** icon, and the **Update** button. Each parameter that you enter creates a separate JCL construct called the SET command. Each one appears as a new line inserted dynamically into the JCL submitted to the Controller for the current execution. The JCL is not permanently modified. For example, you might specify a parameter Name = RUNTYPE and Value = PROD. This results in the following JCL SET statement being inserted in the job after the job card: `// SET RUNTYPE=PROD` The Parameter fields also support two additional special functions: - They allow you to specify any steps you want skipped during the job run. See Skipping Steps during Initial Run for detailed instructions. - They allow you to add data to DD* input streams. See Using Variables in JCL and In-Stream Data Sets for detailed instructions.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: - Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. - Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. - Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. - Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. - Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions). Note ⚠ If Step Conditions has been selected for Exit Code Processing, and you then select a different option, a confirmation pop-up displays to warn that any defined Step Conditions will be removed.
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: - Standard Output (STDOUT) - Standard Error (STDERR) - File

Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • File Attach the file specified in the Output File field. • Standard Output/Error Attach all standard output and standard error output. Note ⚠ Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. • If a **Start Line** value is not specified, the default is 1. • If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.

Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.
Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.
Auto-Restart Option	Allows the z/OS job to be resubmitted with controlled step selection. This option is processed when/if a task transitions to a failed state. It works in conjunction with the Maximum Retries, Retry Interval, and Retry Indefinitely options. Note The Maximum Retries value must be greater than 0 for the Auto-Restart Option to be processed. Options: - None No job steps will be automatically selected for restart. - Restart From First Job Step All restartable job steps will be selected for restart. - Restart From Failed Job Step All restartable job steps from the failed step to the last job step will be selected for restart. - Use Restart Criteria The entries in the Restart Criteria tab will be evaluated. If a Restart Criteria entry matches the failure scenario, the step selection will be based on the option specified in the matching Restart Criteria entry (see Creating Restart Criteria). If you select an option other that **None** for a task that ends in a failed state, audit records will be generated to record the step selection that took place for the restart. The audit records include all restart options, criteria matching, and directives that were used to select the set of job steps to be re-run. z/OS auto-restart audit records show up as audit type **z/OS Auto-Restart** from source **Task Instance**. Note If Use Restart Criteria has been selected for Auto-Restart Option, and you then select a different option, a confirmation pop-up displays to warn that any defined Restart Criteria will be removed.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.

Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day
	Do not advance day.
	- Next Day
	Advance to the next day.
	- Next Business Day
	Advance to the next business day.
	- Sunday
	If today is not Sunday, advance to next Sunday.
	- Monday
	If today is not Monday, advance to next Monday.
	- Tuesday
	If today is not Tuesday, advance to next Tuesday.
	- Wednesday
	If today is not Wednesday, advance to next Wednesday.
	- Thursday
	If today is not Thursday, advance to next Thursday.
	- Friday
	If today is not Friday, advance to next Friday.
	- Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: - – None – - Duration - Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note ⚠ You cannot delete a task if it is either: - Specified in an enabled Trigger. - The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Step Conditions	Lists all step conditions defined for this task.
Restart Criteria	Displays a list of all restart criteria defined for this task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

<table>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.

Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

Viewing a z/OS Task Instance

When a z/OS task is launched, the Controller creates a task instance record of that task.

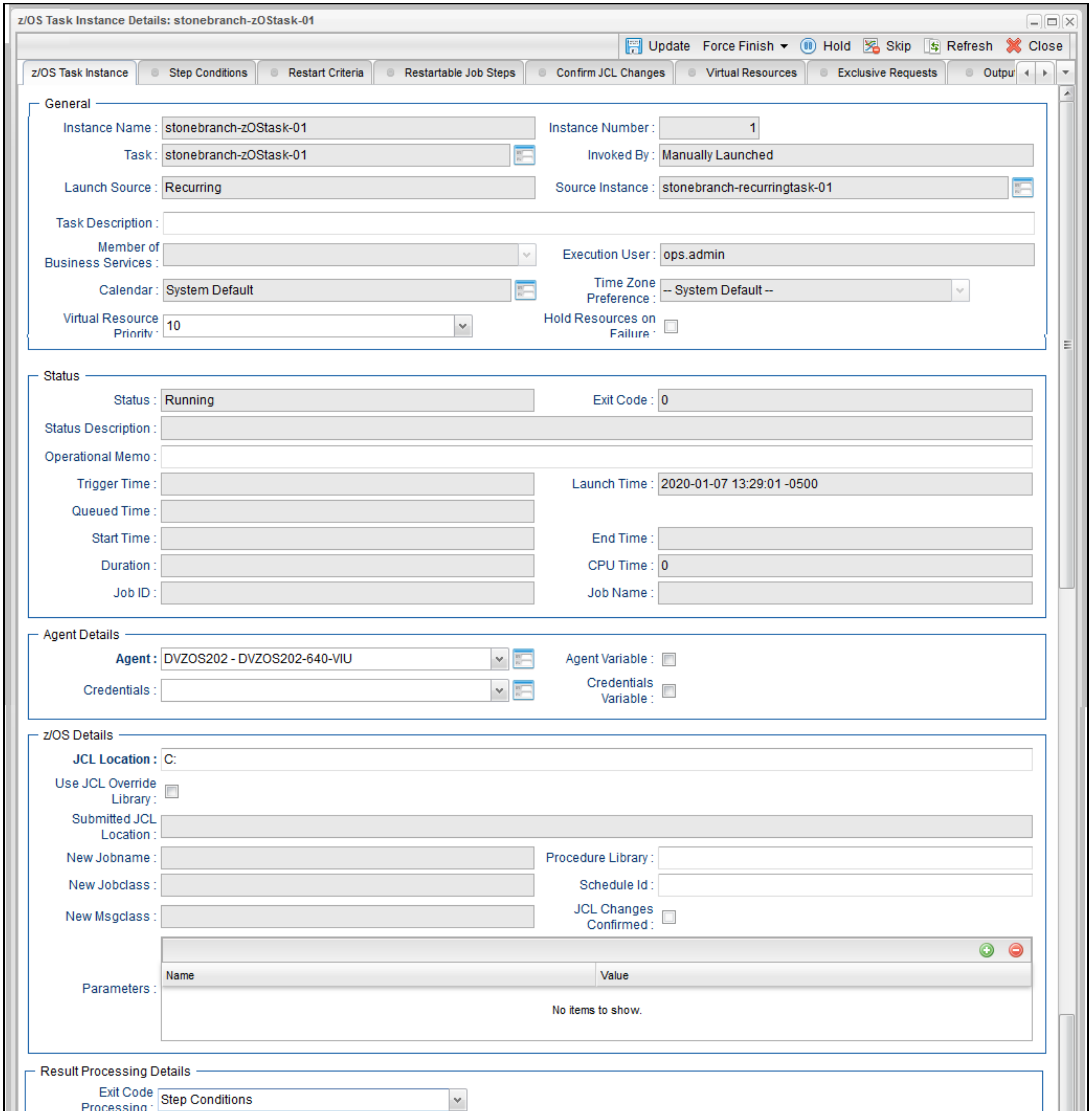
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the z/OS Task Details for that task
- Activity Monitor
- Task Instances list

z/OS Task Instance Details

The following z/OS Task Instance Details contains information on the successful completion of a z/OS task.


z/OS Task Instance Details: stonebranch-zOStask-01
Update
Force Finish
Hold
Skip
Refresh
Close
z/OS Task Instance
Step Conditions
Restart Criteria
Restartable Job Steps
Confirm JCL Changes
Virtual Resources
Exclusive Requests
Outpu

General

Instance Name : stonebranch-zOStask-01
Instance Number : 1
Task : stonebranch-zOStask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Running
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-07 13:29:01 -0500
Queued Time :
Start Time :
End Time :
Duration :
CPU Time : 0
Job ID :
Job Name :

Agent Details

Agent : DVZOS202 - DVZOS202-640-VIU
Agent Variable : ☐
Credentials :
Credentials Variable : ☐

z/OS Details

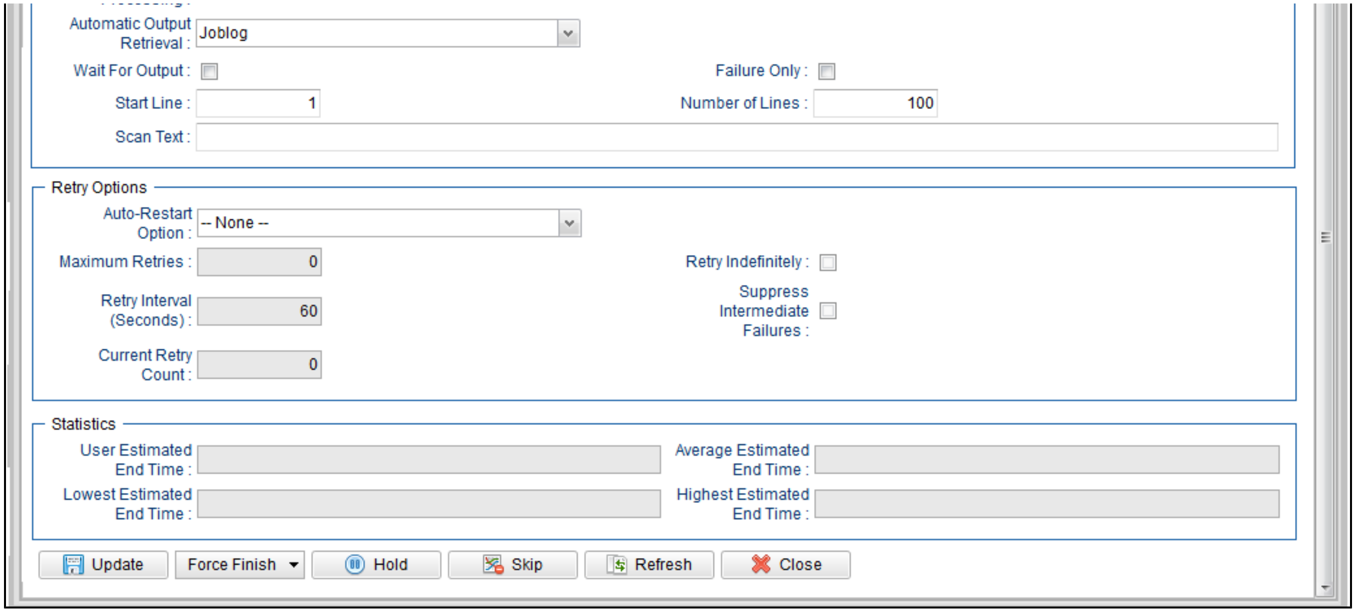
JCL Location : C:
Use JCL Override Library : ☐
Submitted JCL Location :
New Jobname :
Procedure Library :
New Jobclass :
Schedule Id :
New Msgclass :
JCL Changes Confirmed : ☐
Parameters :

Name	Value

No items to show.

Result Processing Details

Exit Code Processing : Step Conditions



Automatic Output Retrieval : Joblog

Wait For Output : ☐

Failure Only : ☐

Start Line : 1

Number of Lines : 100

Scan Text :

Retry Options

Auto-Restart Option : -- None --

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Current Retry Count : 0

Statistics

User Estimated End Time :

Average Estimated End Time :

Lowest Estimated End Time :

Highest Estimated End Time :

z/OS Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in z/OS Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.

Invoked by	System-supplied; how the task instance was launched. Options: - Trigger: (Trigger Name) Instance was launched by the named trigger. - Workflow: (Workflow Name) Instance was launched by the named workflow. - Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Launch Source	System-supplied; Source from which this Recurring task was launched. Options: - Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. - Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. - Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. - Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)

Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
CPU Time	System-supplied; amount of CPU time the task took to run.
Job ID	Job identifier of the job executed by the task instance.
Job Name	Name of the job executed by the task instance.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Agent	Unable to render {include} The included page could not be found.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.

Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
z/OS Details	This section contains assorted detailed information about the task instance.
JCL Location	File and member name containing the JCL script. When you are using the JCL_LIBRARY feature, you can substitute the name of the library with a string starting with "&", that names the library specified in the uags.conf file with the JCL_library definitions. For example, the name of a job might look like the following: `&PRODLIB(PAYJOB01)`
Use JCL Override Library	Allows the task to work with a JCL override library on the target system. If this option is selected, the Agent will check the JCL override path (specified in JCL Override Location) before submitting the job from JCL Location. If a JCL member is found at the override path, the job is submitted from there. Otherwise, the Agent will look to the JCL Location path for submission. The task instance will display the actual path that was used for job submission in Submitted JCL Location.
JCL Override Location	If Use JCL Override Library is selected; Required. Specifies the file and member name potentially containing an override JCL script. The Agent will check this location for JCL before looking in the standard JCL Location. If JCL is found in this location, the job will be submitted from there. If JCL is not found in this location, the Agent will submit the job from the standard JCL Location. Missing override JCL is not considered an error condition. As with JCL Location, when you are using the JCL_LIBRARY feature, you can substitute the name of the library with a string starting with "&" that names the library specified in the **`uags.conf`** file with the JCL_library definitions.
Delete Override JCL	If Use JCL Override Library is selected; Optional. Allows the task to define criteria that will control the automated clean-up of the override JCL. If this option is not selected, the Controller and Agent will take no action to delete the override JCL from the target system.

Submitted JCL Location	System-supplied; actual path that was used for job submission.
Override Instance Count for Deletion	If Delete Override JCL is selected; Required. Specifies the number of successful override instances that must occur before the override JCL library member is deleted. When the deletion criteria has been satisfied, the Controller will instruct the Agent to delete the member specified in JCL Override Location. An override instance is considered successful only if the ending state in the controller is SUCCESS. Note Manual resubmissions of a task instance do not increment the tracked number of successful override instances that go towards satisfying the deletion criteria. If a task is not submitted from the override location (that is, no override member was found), the task's "successful override instance count" is reset to 0.
Number of Override Instances	If Delete Override JCL is selected; Read only; system-supplied. Indicates the number of successful override instances that have occurred for this task. This number is checked against the deletion criteria to determine when the override JCL member should be deleted. Note This number is automatically reset to 0 by the system if a task instance does not submit from override JCL (that is, no override member was found).
New Jobname	Job name that will replace the one in the JCL member. This allows you to override the value in your JCL from the Controller without having to modify the JCL. This value should be validated before the job is launched to avoid JES start failures. The syntax of a job name is: - 1-8 characters - Upper case - Name must start with an alphabetic or $, #, @ character. - Remaining characters are alphanumeric or $, #, @. - No spaces or tabs.
New Jobclass	New Jobclass to replace the one in the JCL member. This allows you to override the value in your JCL from the Controller without having to modify the JCL.
New Msgclass	New MSGCLASS to replace the one in the JCL member. This allows you to override the value in your JCL from the Controller without having to modify the JCL.
Procedure Library	The PROCLIB field allows for defining a JES2 PROCLIB control statement in the job JCL. For example, a PROCLIB value of PROC01 will result in the following JES2 control statement generated in the job JCL: `/*JESPARM PROCLIB=PROC001` The PROCLIB value must refer to a ddname defined in the JES2 procedure. Refer to IBM MVS JCL Reference for more information regarding the JES2 PROCLIB control statement.

JCL Changes Confirmed	If Status = **Confirmation Required**; indicates that JCL changes have been confirmed. You cannot rerun a job if this field is not selected.
Schedule ID	CA7 Schedule ID; for CA7 toleration only (see CA7/CA11 Toleration).
Parameters	Displays a list of parameters that will be inserted into the JCL. Each parameter consists of a Name and a Value. You can enter as many parameters as needed. To add a parameter, click the **+** icon; add a Name and Value, and click the **Update** button. To delete a parameter, click the parameter on the list, the **-** icon, and the **Update** button. Each parameter that you enter creates a separate JCL construct called the SET command. Each one appears as a new line inserted dynamically into the JCL submitted to the Controller for the current execution. The JCL is not permanently modified. For example, you might specify a parameter Name = RUNTYPE and Value = PROD. This results in the following JCL SET statement being inserted in the job after the job card: `// SET RUNTYPE=PROD` The Parameter fields also support two additional special functions: - They allow you to specify any steps you want skipped during the job run. See Skipping Steps during Initial Run for detailed instructions. - They allow you to add data to DD* input streams. See Using Variables in JCL and In-Stream Data Sets for detailed instructions.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: - Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. - Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. - Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. - Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. - Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions). Note ⚠ If Step Conditions has been selected for Exit Code Processing, and you then select a different option, a confirmation pop-up displays to warn that any defined Step Conditions will be removed.

Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: - Standard Output (STDOUT) - Standard Error (STDERR) - File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: - None Do not attach any output to the task instance record. - Standard Output Attach all standard output. - Standard Error Attach standard error output. - File Attach the file specified in the Output File field. - Standard Output/Error Attach all standard output and standard error output. Note ⚠ Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.

Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. • If a **Start Line** value is not specified, the default is 1. • If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.
Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.
Auto-Restart Option	Allows the z/OS job to be resubmitted with controlled step selection. This option is processed when/if a task transitions to a failed state. It works in conjunction with the Maximum Retries, Retry Interval, and Retry Indefinitely options. Note The Maximum Retries value must be greater than 0 for the Auto-Restart Option to be processed. Options: • None No job steps will be automatically selected for restart. • Restart From First Job Step All restartable job steps will be selected for restart. • Restart From Failed Job Step All restartable job steps from the failed step to the last job step will be selected for restart. • Use Restart Criteria The entries in the Restart Criteria tab will be evaluated. If a Restart Criteria entry matches the failure scenario, the step selection will be based on the option specified in the matching Restart Criteria entry (see Creating Restart Criteria). If you select an option other that **None** for a task that ends in a failed state, audit records will be generated to record the step selection that took place for the restart. The audit records include all restart options, criteria matching, and directives that were used to select the set of job steps to be re-run. z/OS auto-restart audit records show up as audit type **z/OS Auto-Restart** from source **Task Instance**. Note If Use Restart Criteria has been selected for Auto-Restart Option, and you then select a different option, a confirmation pop-up displays to warn that any defined Restart Criteria will be removed.

Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: - Re-run - Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the z/OS Task Instance Details that provide access to additional information about the task instance.
Step Conditions	Lists all step conditions defined for this task.
Restart Criteria	Displays a list of all restart criteria defined for this task.
Restartable Job Steps	(See Re-running a z/OS Task.)
Confirm JCL Changes	(See Re-running a z/OS Task.)

Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.
Output	Displays output generated from the process, if any, based on specifications provided by the user in the Automatic Output Retrieval fields in the task Details. If automatic output retrieval was not available or was not selected, output can be obtained by clicking the Retrieve Output button.
Notes	Lists all notes associated with this record.

Running a z/OS Task

You can run a z/OS task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the z/OS tasks list or z/OS Task Details Action menu.
- As part of a Workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Special Processing on z/OS Tasks

- Overview
- Using Variables in JCL and In-Stream Data Sets
    - JCL Symbolic Parameters
    - Universal Controller Parameters
- Skipping Steps during Initial Run
- Overriding Key JCL Parameters from Universal Controller
- Disabling Automatic Data Set Deletion
- Re-running a z/OS Task Instance
    - Confirming JCL Changes
    - Re-running a z/OS Task Instance in Start Failure Status
    - Re-run a z/OS Task Instance from a Specific Step
    - Restartable Job Steps List Column Descriptions
    - Confirm JCL Changes Tab Column Descriptions
- Interactively Ignoring a Step Code to Complete a Task
- CA7/CA11 Toleration
    - Non-Restartable Customized Job Steps
    - SCHID - Overriding the CA7 Schedule ID
- Non-Restartable Job Steps
- Viewing Re-run Reports
- Viewing Audit Trails on a Restart

Overview

The following special processing features are available for running z/OS tasks:

- Using Variables in JCL and In-Stream Data Sets
- Skipping Steps during Initial Run
- Overriding Key JCL Parameters from Universal Controller
- Disabling Automatic Data Set Deletion

The following failure processing features are available for handling job failures:

- Re-running a z/OS Task Instance
- Interactively Ignoring a Step Code to Force a Task to Complete

The Controller supports compatibility with other schedulers:

- CA7/CA11 Toleration

The Controller provides the following reports that track error processing:

- Viewing Re-run Reports
- Viewing Audit Trails on a Restart

Each of these features is described in detail below.

Using Variables in JCL and In-Stream Data Sets

There are two categories of variables that can be defined in z/OS task Details:

- JCL Symbolic Parameters
- Universal Controller Parameters

Parameter values can use Universal Controller built-in or user-defined variables.

JCL Symbolic Parameters

Use the z/OS Task Details Parameters field to specify JCL symbolic parameters to be used in the JCL.

Any parameter name that does not start with `*@` is considered a JCL symbolic parameter. JCL symbolic parameters result in the Controller adding a JCL SET statement to the JCL before the first step EXEC statement.

As an example, a z/OS Task parameter name of PHLQ and value of APP.PROD will result in the following JCL SET statement being added to the JCL:

```
// SET PHLQ=APP.PROD
```

The PHLQ symbolic parameter in the example above can then be used in the remaining JCL as described by the IBM JCL Reference.

Universal Controller Parameters

Use the z/OS Task Details Parameters field to specify parameters that can be used in any JCL statement and in in-stream data sets.

In-stream data sets are typically defined with a DD * JCL statement. the Controller will substitute the parameter values in the JCL statements and in the in-stream data before the JCL is submitted to JES.

Universal Controller parameters are defined with a parameter name that starts with the character sequence `*@`. The parameters are referenced in the JCL and in-stream data by prefixing the parameter name with the `@` character.

The following steps add a Universal Controller parameter with the name `*@DATE1` and a value of 20110601:

Step 1	Open the z/OS task.
Step 2	In the Parameters field, click the **+** icon.
Step 3	Add a parameter in the following format: • Name is the name of a variable preceded with `@`. For example: `*@DATE1`. • Value is the value you want to set to the variable. For example: `20110601`.

Step 4

When the JCL is submitted for execution, the parameter `*@DATE1` (shown in the following example) will be substituted with the value 20110601 in the JCL or in any in-stream data. The example also shows the `*@DATE1` parameter being used in an in-stream data and in a JCL IF statement:

```
//INPUT DD *
@DATE1
/*
```

```
//AIF   IF @DATE1 > 20110101 THEN
```

If a Universal Controller parameter must be concatenated with a non-space character, end the parameter name with a period (.). The example below uses the `*@DATE1` parameter concatenated with a non-space character in an in-stream data set:

```
//INPUT DD *
DATE@DATE1.ACT9898
/*
```

Skipping Steps during Initial Run

In a z/OS task, you can specify that one or more steps from the JCL should be skipped when the Controller launches the job. You achieve this by adding SKIPSTNN variables (or parameters) to your z/OS task record.

To configure your z/OS task to skip specific JCL steps:

Step 1	Open the z/OS task.
Step 2	In the Parameters field, click the **+** icon.
Step 3	Add a parameter in the following format: • Name = SKIPSTAA (SKIPST is a required string. AA is any combination of alphanumerics used to make this SKIPST command unique. (You can add as many SKIPST commands as needed.) • Value = STEPNAME (JCL step name)

Step 4	Repeat Steps 2 and 3 for each step you want to skip. Change the AA portion of the SKIPST for each parameter you add. Each Name must be unique. For example, you could enter parameters: • SKIPST01, STEP03 • SKIPST02, STEPo5

Overriding Key JCL Parameters from Universal Controller

When you launch a z/OS task from the Controller, you can specify a different Jobname, Jobclass, Msgclass, Schedule ID or add a JOBPARM card. This enables you to run your JCL jobs from the Controller without having to go in and modify your JCL. You can do so by entering new value into the appropriate field in the z/OS Task Details.

Disabling Automatic Data Set Deletion

Universal Automation Center Agent (UAG) will automatically detect and delete data sets that would cause a **NOT CATLGD 2** condition. The data set deletion takes place before the job is started. Automatic data set deletion can be disabled for a z/OS task by defining the OPSDSDEL parameter with a value of NO in the z/OS task definition.

To configure your z/OS task with automatic data set deletion disabled:

Step 1	Open the z/OS task.
Step 2	In the Parameters field, click the **+** icon.
Step 3	Add a parameter in the following format: • Name = OPSDSDEL • Value = NO

The OPSDSDEL parameter accepts a value of YES (the default) or NO.

- A value of YES specifies that automatic data set deletion is enabled for the z/OS task.
- A value of NO specifies that automatic data set deletion is disabled for the z/OS task.

The Re-run Report will indicate if the feature has been disabled.

Re-running a z/OS Task Instance

When you re-run a z/OS task, you must select job steps in the task to include in the re-run; you cannot simply click a **Re-run** button or **Re-run** in an Action menu, as with other tasks.

The **Restartable Job Steps** tab in the z/OS Task Instance Details provides a list of all job steps in the task and indicates from which steps you can start the re-run.

When you re-run a z/OS task, the Controller automatically performs the following:

- Deletes data sets that were created in dependent steps.
- Maintains Generation data group.

Note

You must re-run a z/OS task from the Universal Controller user interface in order for these clean-up procedures to be performed. Do not re-run the task from the z/OS prompt.

You also can re-run a z/OS task in the In Doubt status (see Re-run a z/OS Task Instance in the In Doubt Status).

Confirming JCL Changes

If you make any JCL changes, the Controller will prompt you for a confirmation, as described in Re-run a z/OS Task Instance from a Specific Step, below.

During the confirmation process, UAG checks for the following JCL changes:

- Job name has changed.
- Step name had changed.
- Steps have been re-ordered.
- Program name has changed for a step.
- New steps.
- Removed steps.
- New DD statements.
- Removed DD statements.
- Dataset name changed for a DD.

Note

UAG does not check for changes to steps which will not run.

Re-running a z/OS Task Instance in Start Failure Status

If a z/OS task instance is in Start Failure status, the existence or non-existence of Restartable Job Steps will determine the outcome of a Re-run command.

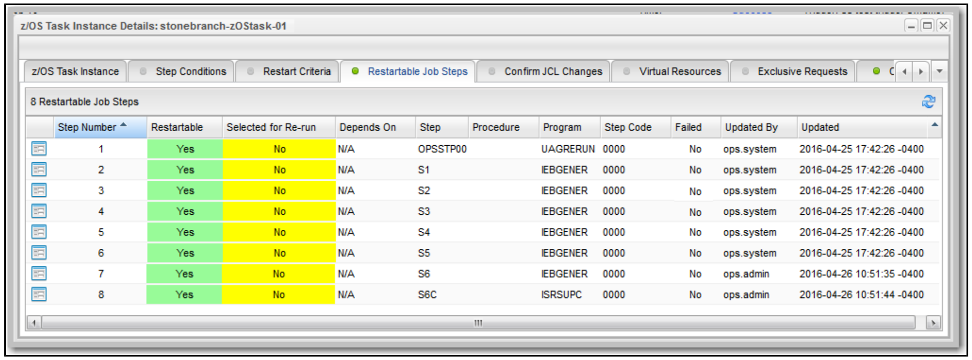
- If Restartable Job Steps exist, you can re-run the task instance from any steps identified as Restartable under the Restartable Job Steps tab.
- If Restartable Job Steps do not exist, you must re-submit the task instance from the beginning, as when re-running a z/OS task instance from the In Doubt status.

Re-run a z/OS Task Instance from a Specific Step

Step 1	On the Activity Monitor, click the Details icon next to the **Instance Name** of the task you want to re-run. The z/OS Task Instance Details displays.

Step 2

Click the **Restartable Job Steps** tab to display a list of all job steps in the task.


z/OS Task Instance Details: stonebranch-zOStask-01
z/OS Task Instance
Step Conditions
Restart Criteria
Restartable Job Steps
Confirm JCL Changes
Virtual Resources
Exclusive Requests

8 Restartable Job Steps

Step Number	Restartable	Selected for Re-run	Depends On	Step	Procedure	Program	Step Code	Failed	Updated By	Updated
1	Yes	No	N/A	OPSSTP00		UAGRERUN	0000	No	ops.system	2016-04-25 17:42:26 -0400
2	Yes	No	N/A	S1		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
3	Yes	No	N/A	S2		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
4	Yes	No	N/A	S3		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
5	Yes	No	N/A	S4		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
6	Yes	No	N/A	S5		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
7	Yes	No	N/A	S6		IEBGENER	0000	No	ops.admin	2016-04-26 10:51:35 -0400
8	Yes	No	N/A	S6C		ISRSUPC	0000	No	ops.admin	2016-04-26 10:51:44 -0400

Check the **Restartable** column to see from which steps you can start the re-run (Yes or No).

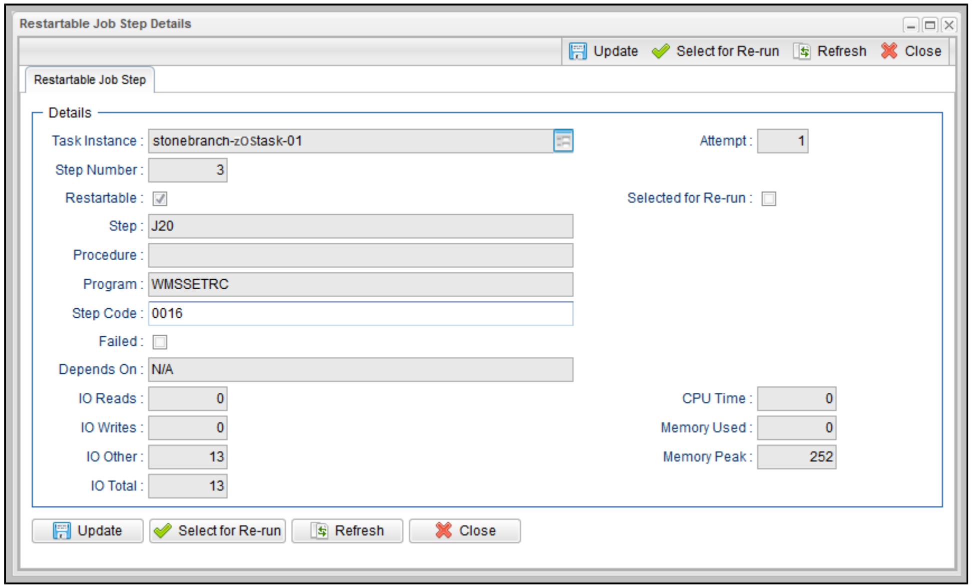
If applicable, the **Failed** column indicates at which step(s) the task failed.

Step 3

Assuming any failures were caused by error(s) in the JCL, examine the JCL and make your corrections. The Controller uses a background process to determine whether changes have been made to the JCL. Any changes trigger a confirmation process.

Step 4

Click the Details icon next to the **Step Number** of any step to see detail information about that step.


Restartable Job Step Details
Update
Select for Re-run
Refresh
Close
Restartable Job Step
Details

Task Instance : stonebranch-zOStask-01

Attempt : 1

Step Number : 3

Restartable : ☑

Selected for Re-run : ☐

Step : J20

Procedure :

Program : WMSSETRC

Step Code : 0016

Failed : ☐

Depends On : N/A

IO Reads : 0

CPU Time : 0

IO Writes : 0

Memory Used : 0

IO Other : 13

Memory Peak : 252

IO Total : 13

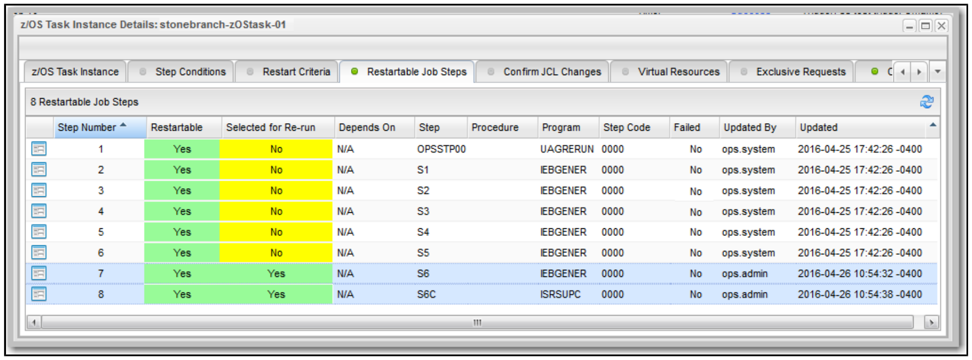
Step 5

From the Restartable Job Steps list, select the steps that you want included in the re-run:

1. Click the first step that you want included in the re-run.
2. Press and hold the <Shift> key.
3. Click the last step that you want included in the re-run.
4. Right-click any step in the selected group to display an Action menu.
5. Click **Select for Re-run**.

(You also can right-click a step and select **Select to End for Re-run** to include that selected step and all following steps in the re-run.)

If you want to de-select a job step in the group for inclusion in the re-run, right-click the step and, in the Action menu, click **Deselect for Re-run**.


z/OS Task Instance Details: stonebranch-zOStask-01
z/OS Task Instance
Step Conditions
Restart Criteria
Restartable Job Steps
Confirm JCL Changes
Virtual Resources
Exclusive Requests

8 Restartable Job Steps

Step Number	Restartable	Selected for Re-run	Depends On	Step	Procedure	Program	Step Code	Failed	Updated By	Updated
1	Yes	No	N/A	OPSSTP00		UAGRERUN	0000	No	ops.system	2016-04-25 17:42:26 -0400
2	Yes	No	N/A	S1		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
3	Yes	No	N/A	S2		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
4	Yes	No	N/A	S3		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
5	Yes	No	N/A	S4		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
6	Yes	No	N/A	S5		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
7	Yes	Yes	N/A	S6		IEBGENER	0000	No	ops.admin	2016-04-26 10:54:32 -0400
8	Yes	Yes	N/A	S6C		ISRSUPC	0000	No	ops.admin	2016-04-26 10:54:38 -0400

Step 6

Click the **z/OS Task Instance tab** to redisplay the z/OS Task Instance Details.

Step 7

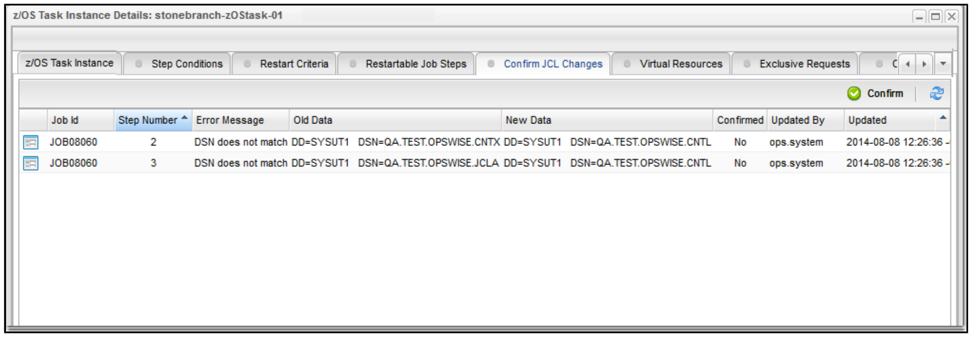
Click the **Re-run** button to re-run the task for the selected job steps.

Step 8

If you have made changes to the JCL, the task instance goes into a status of **Confirmation Required** on the Activity Monitor.

To confirm the changes:

1. From the Activity Monitor, open the task instance.
2. Click the **Confirm JCL Changes** tab to display a list of all changes that were made to the JCL:



Job Id	Step Number	Error Message	Old Data	New Data	Confirmed	Updated By	Updated
JOB08060	2	DSN does not match	DD=SYSUT1 DSN=QA.TEST.OPSWISE.CNTX	DD=SYSUT1 DSN=QA.TEST.OPSWISE.CNTL	No	ops.system	2014-08-08 12:26:36 -
JOB08060	3	DSN does not match	DD=SYSUT1 DSN=QA.TEST.OPSWISE.JCLA	DD=SYSUT1 DSN=QA.TEST.OPSWISE.CNTL	No	ops.system	2014-08-08 12:26:36 -

3. Click the **Confirm** button at the top of the list.
4. Click the **z/OS Task Instance** tab. Verify that the **JCL Changes Confirmed** field is checked and then click the **Re-run** button.

Note

If a z/OS task instance transitions into the Confirmation Required status, and the Controller determines that the number of steps did not change, it preserves the step re-run selection.

However, if the Controller detects a change in the number of steps, all steps will be de-selected.

Step 9

After the re-run is complete, the **Failed** column in the **Restartable Job Steps** list should show **No** for each step.

Note

If you repeat the above process on the same task instance, the previous list of JCL changes, if any, is replaced with the most recent list of changes.

Restartable Job Steps List Column Descriptions

The following table describes each column on the z/OS Restartable Job Steps list.

Column Name	Description
Step Number	Number assigned to this step by the Controller.
Restartable	If the JCL job fails, the Controller determines the latest step that you can restart from. Yes indicates that you can restart from this step.
Selected for Re-run	Indicates (Yes or No) whether or not this step has been selected for re-run (the Selected for Re-run field is enabled in the Restartable Job Steps Details).
Depends On	Specifies which other step(s), if any, must be completed successfully before you can run this step.
Step	Name of the JCL step (extracted from the JCL).
Procedure	Procedure step name from within the JCL step.

Program	Name of the program being executed by the step.
Step Code	Extracted from the JCL. Exit code for this step of the program.
Failed	Indicates (Yes or No) whether or not this step failed.
Updated By	Name of the user that last updated this step.
Updated	Date and time that this step was last updated.

Confirm JCL Changes Tab Column Descriptions

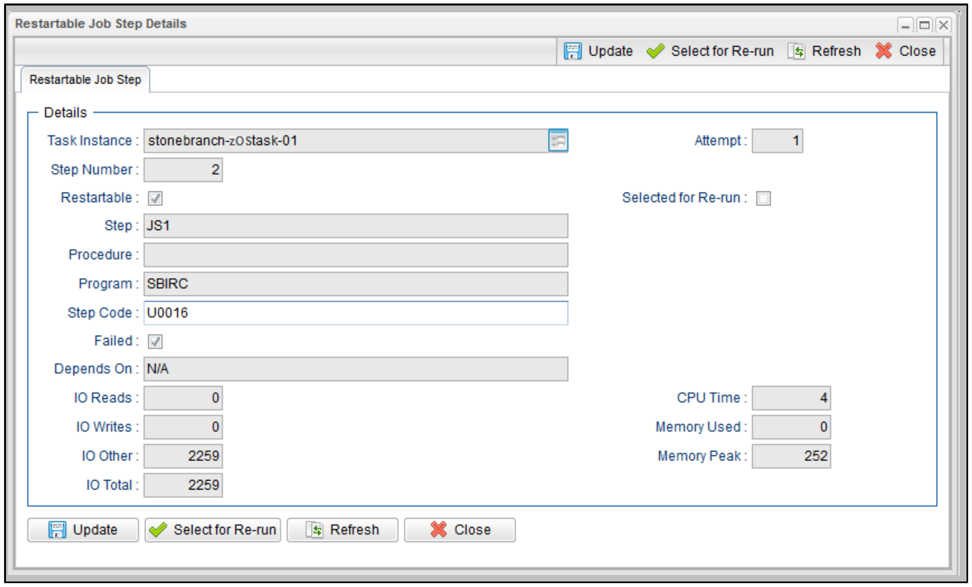
The following table describes each column on the Confirm JCL Changes list.

Column Name	Description
Job Id	Number assigned to this step by the Controller.
Step Number	JCL step number that was modified.
Error Message	Description of the change.
Old Data	JCL before the change.
New Data	JCL after the change.
Confirmed	Indicates (Yes or No) whether or not this JCL change was confirmed.
Updated By	Name of the user that last updated the JCL.
Updated	Date and time that the JCL was last updated.

Interactively Ignoring a Step Code to Complete a Task

If the step code (exit code) on a previous step is causing a step failure, but you still want to finish the job, you can change the step code in order to complete the task.

Step 1	From the Activity Monitor, open the task instance.

Step 2	From the **Restartable Steps** tab, click on the step whose code you want to change. The Restartable Job Step Details for this job step displays:  Restartable Job Step Details Update Select for Re-run Refresh Close Restartable Job Step Details Task Instance : stonebranch-zOstask-01 Attempt : 1 Step Number : 2 Restartable : ☑ Selected for Re-run : ☐ Step : JS1 Procedure : Program : SBIRC Step Code : U0016 Failed : ☑ Depends On : N/A IO Reads : 0 CPU Time : 4 IO Writes : 0 Memory Used : 0 IO Other : 2259 Memory Peak : 252 IO Total : 2259 Update Select for Re-run Refresh Close
Step 3	Enter the new code in the **Step Code** field and click **Update**.
Step 4	Click the **z/OS Task Instance** tab and then click the **Re-run** button.

Note

By default, on a re-run, the return code in the restarted step will revert to the original return code.

To retain the new step code, change the Retain Overridden Step Codes On z/OS Task Re-run Universal Controller system property to true.

CA7/CA11 Toleration

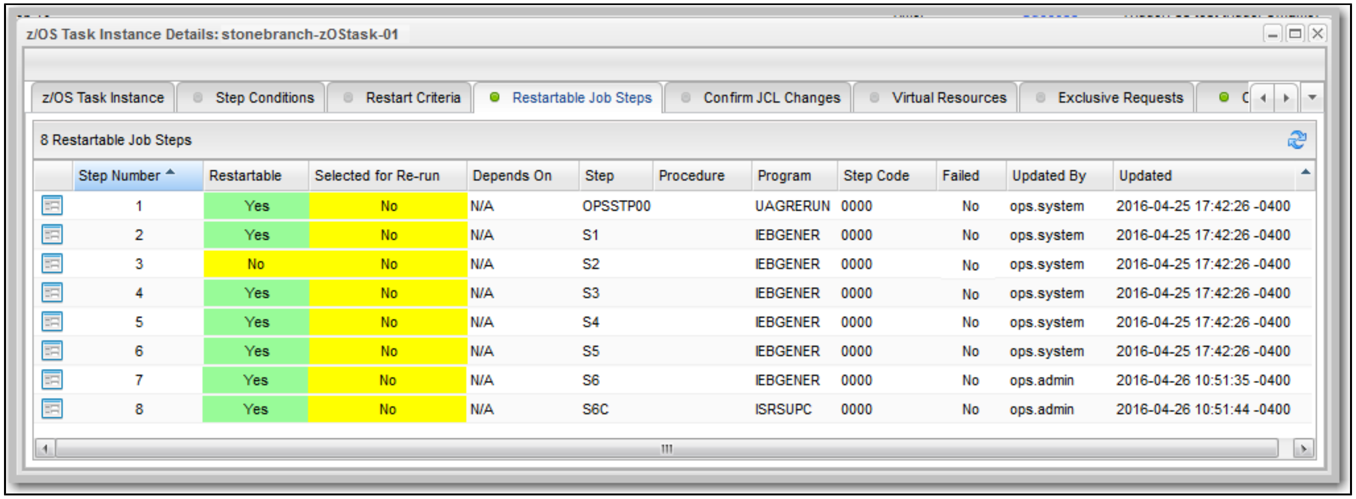
Non-Restartable Customized Job Steps

The Controller can read and interpret JCL step names that have been customized for CA11 and UCC. This allows you to launch your existing CA11 and UCC jobs from the Controller without modifying the JCL.

When the Controller encounters one of the following step names in your JCL, the Controller will skip the step during a restart:

- CA11NR - CA11 Non-Restartable
- UCC11NR - UCC11 Non-Restartable
- OPSNR000 - Opswise Non-Restartable

In the following example, step 3 has one of the above DD Names and therefore is a non-restartable step.



8 Restartable Job Steps

	Step Number	Restartable	Selected for Re-run	Depends On	Step	Procedure	Program	Step Code	Failed	Updated By	Updated
	1	Yes	No	N/A	OPSSTP00		UAGRERUN	0000	No	ops.system	2016-04-25 17:42:26 -0400
	2	Yes	No	N/A	S1		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
	3	No	No	N/A	S2		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
	4	Yes	No	N/A	S3		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
	5	Yes	No	N/A	S4		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
	6	Yes	No	N/A	S5		IEBGENER	0000	No	ops.system	2016-04-25 17:42:26 -0400
	7	Yes	No	N/A	S6		IEBGENER	0000	No	ops.admin	2016-04-26 10:51:35 -0400
	8	Yes	No	N/A	S6C		ISRSUPC	0000	No	ops.admin	2016-04-26 10:51:44 -0400

SCHID - Overriding the CA7 Schedule ID

The Schedule ID field in the z/OS Task Details allows you to override the CA7 SCHID (Schedule ID).

For example, the JCL shown below contains CA7 Scheduled Overrides statements #JI and #JEND. This JCL will set CLASS =A if the SCHID is between 1 thru 39, and set CLASS=B if the SCHID is between 40 thru 79. The user can set the SCHID by entering it into the Schedule ID field. The Agent scans for #JI and #JEND, and generates the appropriate JCL, as shown in the following example.

```
//SCHID JOB (IMS,001),JIM,MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY=&SYSUID,
#JI,ID=1-39
//             CLASS=A
#JEND
#JI,ID=40-79
//             CLASS=B
#JEND
//S1      EXEC PGM=IGWSPZAP
//SYSLIB   DD DSN=OPS01.JS01.LOAD,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
DUMPT WMSSETRC WMSSETRC
/*
//
```

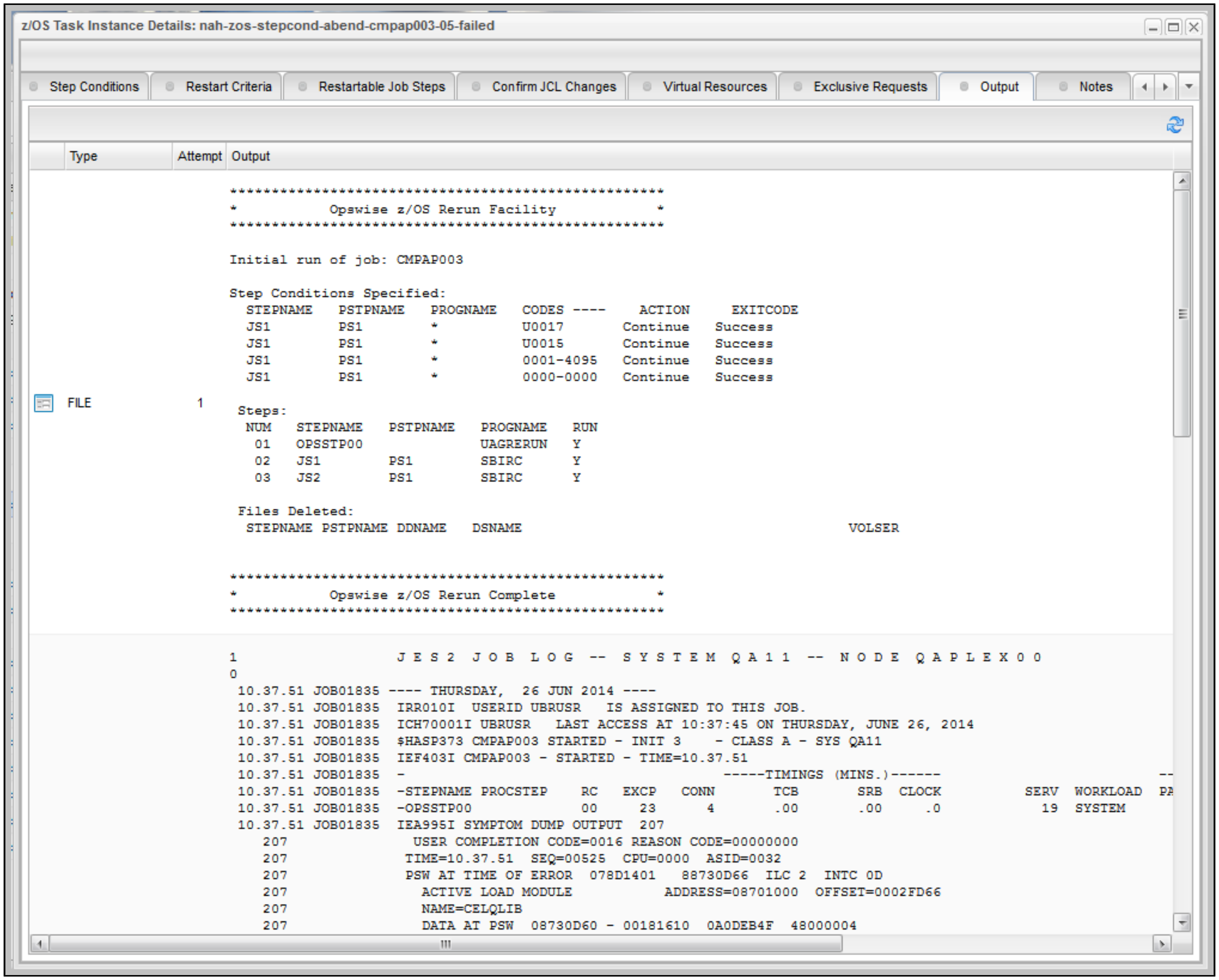
Non-Restartable Job Steps

A z/OS Agent determines that a job step is non-restartable if the step contains any of the following:

- One of the special DDNAMEs: CA11NR, UCC11NR, or OPSNR000.
- DD statement with DISP=(NEW,PASS) or (OLD,DELETE). (Note that the third DISP value is not considered by the agent.)
- A backwards volume reference. For example: VOL=REF=...

Viewing Re-run Reports

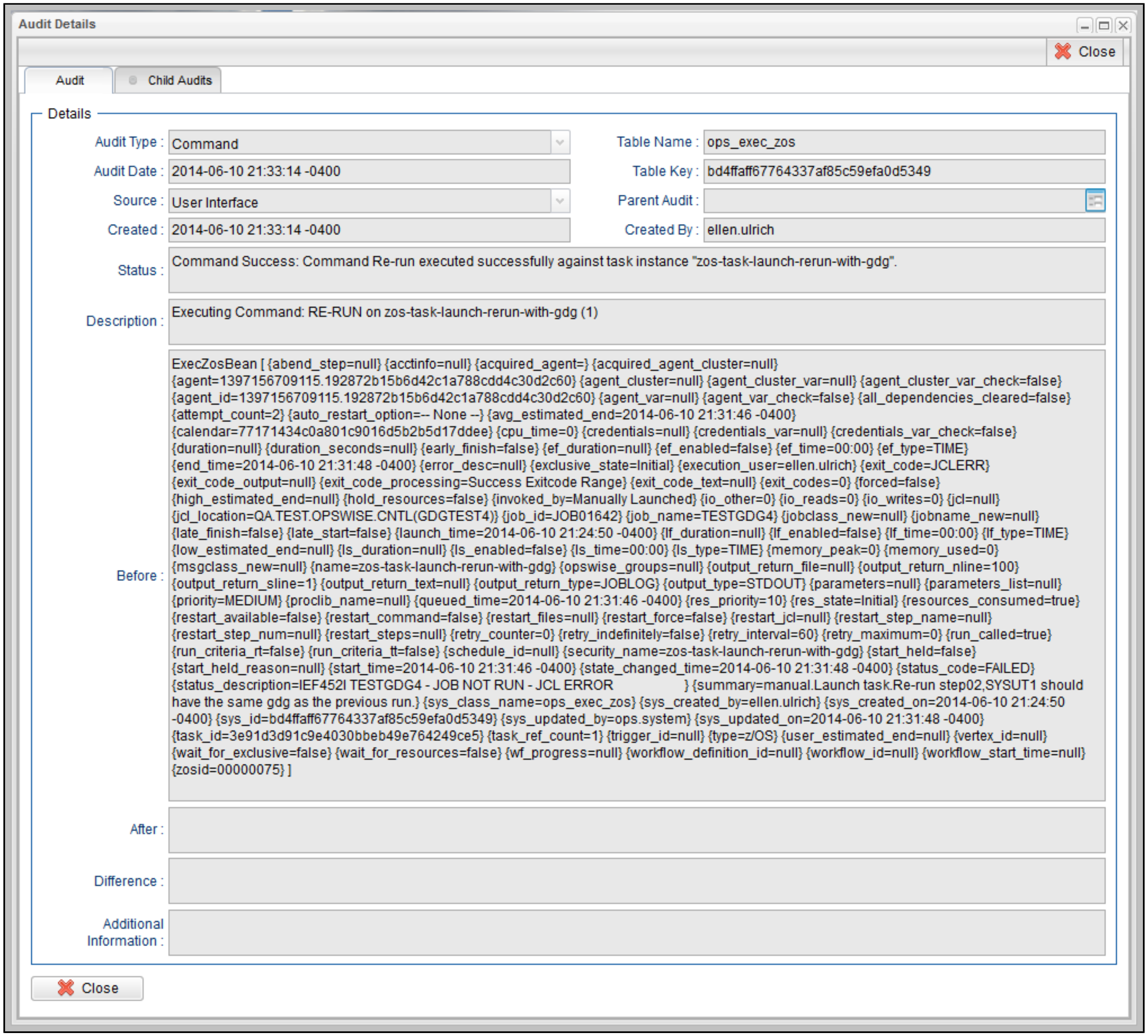
The Controller keeps a detailed record of task re-runs. This data is written to the **Output** tab on the task instance record, as shown in the sample below:


z/OS Task Instance Details: nah-zos-stepcond-abend-cmpap003-05-failed
Step Conditions
Restart Criteria
Restartable Job Steps
Confirm JCL Changes
Virtual Resources
Exclusive Requests
Output
Notes
Type
Attempt
Output
FILE
1

```
****************************************************
*           Opswise z/OS Rerun Facility            *
****************************************************

Initial run of job: CMPAP003

Step Conditions Specified:
  STEPNAME   PSTPNAME   PROGNAME   CODES ----    ACTION     EXITCODE
  JS1        PS1        *          U0017       Continue   Success
  JS1        PS1        *          U0015       Continue   Success
  JS1        PS1        *          0001-4095   Continue   Success
  JS1        PS1        *          0000-0000   Continue   Success

 Steps:
  NUM   STEPNAME   PSTPNAME   PROGNAME   RUN
   01   OPSSTP00              UAGRERUN   Y
   02   JS1        PS1        SBIRC      Y
   03   JS2        PS1        SBIRC      Y

 Files Deleted:
  STEPNAME PSTPNAME DDNAME   DSNAME                                       VOLSER


****************************************************
*           Opswise z/OS Rerun Complete            *
****************************************************

1                   J E S 2  J O B  L O G  --  S Y S T E M  Q A 1 1  --  N O D E  Q A P L E X 0 0
0
 10.37.51 JOB01835 ---- THURSDAY,  26 JUN 2014 ----
 10.37.51 JOB01835  IRR010I  USERID UBRUSR   IS ASSIGNED TO THIS JOB.
 10.37.51 JOB01835  ICH70001I UBRUSR   LAST ACCESS AT 10:37:45 ON THURSDAY, JUNE 26, 2014
 10.37.51 JOB01835  $HASP373 CMPAP003 STARTED - INIT 3    - CLASS A - SYS QA11
 10.37.51 JOB01835  IEF403I CMPAP003 - STARTED - TIME=10.37.51
 10.37.51 JOB01835  -                                      -----TIMINGS (MINS.)------                    --
 10.37.51 JOB01835  -STEPNAME PROCSTEP    RC   EXCP   CONN       TCB       SRB  CLOCK          SERV  WORKLOAD  PA
 10.37.51 JOB01835  -OPSSTP00             00     23      4       .00       .00     .0            19  SYSTEM
 10.37.51 JOB01835  IEA995I SYMPTOM DUMP OUTPUT  207
    207               USER COMPLETION CODE=0016 REASON CODE=00000000
    207              TIME=10.37.51  SEQ=00525  CPU=0000  ASID=0032
    207              PSW AT TIME OF ERROR  078D1401   88730D66  ILC 2  INTC 0D
    207                ACTIVE LOAD MODULE           ADDRESS=08701000  OFFSET=0002FD66
    207                NAME=CELQLIB
    207                DATA AT PSW  08730D60 - 00181610  0A0DEB4F  48000004
```

Viewing Audit Trails on a Restart

The Controller maintains detailed audit records on all system activity. The following audit record is for a re-run on a z/OS task.



Audit Type : Command

Audit Date : 2014-06-10 21:33:14 -0400

Source : User Interface

Created : 2014-06-10 21:33:14 -0400

Table Name : ops_exec_zos

Table Key : bd4ffaff67764337af85c59efa0d5349

Parent Audit :

Created By : ellen.ulrich

Status : Command Success: Command Re-run executed successfully against task instance "zos-task-launch-rerun-with-gdg".

Description : Executing Command: RE-RUN on zos-task-launch-rerun-with-gdg (1)

Before :

```
ExecZosBean [ {abend_step=null} {acctinfo=null} {acquired_agent=} {acquired_agent_cluster=null}
{agent=1397156709115.192872b15b6d42c1a788cdd4c30d2c60} {agent_cluster=null} {agent_cluster_var=null} {agent_cluster_var_check=false}
{agent_id=1397156709115.192872b15b6d42c1a788cdd4c30d2c60} {agent_var=null} {agent_var_check=false} {all_dependencies_cleared=false}
{attempt_count=2} {auto_restart_option=-- None --} {avg_estimated_end=2014-06-10 21:31:46 -0400}
{calendar=77171434c0a801c9016d5b2b5d17ddee} {cpu_time=0} {credentials=null} {credentials_var=null} {credentials_var_check=false}
{duration=null} {duration_seconds=null} {early_finish=false} {ef_duration=null} {ef_enabled=false} {ef_time=00:00} {ef_type=TIME}
{end_time=2014-06-10 21:31:48 -0400} {error_desc=null} {exclusive_state=Initial} {execution_user=ellen.ulrich} {exit_code=JCLERR}
{exit_code_output=null} {exit_code_processing=Success Exitcode Range} {exit_code_text=null} {exit_codes=0} {forced=false}
{high_estimated_end=null} {hold_resources=false} {invoked_by=Manually Launched} {io_other=0} {io_reads=0} {io_writes=0} {jcl=null}
{jcl_location=QA.TEST.OPSWISE.CNTL(GDGTEST4)} {job_id=JOB01642} {job_name=TESTGDG4} {jobclass_new=null} {jobname_new=null}
{late_finish=false} {late_start=false} {launch_time=2014-06-10 21:24:50 -0400} {lf_duration=null} {lf_enabled=false} {lf_time=00:00} {lf_type=TIME}
{low_estimated_end=null} {ls_duration=null} {ls_enabled=false} {ls_time=00:00} {ls_type=TIME} {memory_peak=0} {memory_used=0}
{msgclass_new=null} {name=zos-task-launch-rerun-with-gdg} {opswise_groups=null} {output_return_file=null} {output_return_nline=100}
{output_return_sline=1} {output_return_text=null} {output_return_type=JOBLOG} {output_type=STDOUT} {parameters=null} {parameters_list=null}
{priority=MEDIUM} {proclib_name=null} {queued_time=2014-06-10 21:31:46 -0400} {res_priority=10} {res_state=Initial} {resources_consumed=true}
{restart_available=false} {restart_command=false} {restart_files=null} {restart_force=false} {restart_jcl=null} {restart_step_name=null}
{restart_step_num=null} {restart_steps=null} {retry_counter=0} {retry_indefinitely=false} {retry_interval=60} {retry_maximum=0} {run_called=true}
{run_criteria_rt=false} {run_criteria_tt=false} {schedule_id=null} {security_name=zos-task-launch-rerun-with-gdg} {start_held=false}
{start_held_reason=null} {start_time=2014-06-10 21:31:46 -0400} {state_changed_time=2014-06-10 21:31:48 -0400} {status_code=FAILED}
{status_description=IEF452I TESTGDG4 - JOB NOT RUN - JCL ERROR                } {summary=manual.Launch task.Re-run step02,SYSUT1 should
have the same gdg as the previous run.} {sys_class_name=ops_exec_zos} {sys_created_by=ellen.ulrich} {sys_created_on=2014-06-10 21:24:50
-0400} {sys_id=bd4ffaff67764337af85c59efa0d5349} {sys_updated_by=ops.system} {sys_updated_on=2014-06-10 21:31:48 -0400}
{task_id=3e91d3d91c9e4030bbeb49e764249ce5} {task_ref_count=1} {trigger_id=null} {type=z/OS} {user_estimated_end=null} {vertex_id=null}
{wait_for_exclusive=false} {wait_for_resources=false} {wf_progress=null} {workflow_definition_id=null} {workflow_id=null} {workflow_start_time=null}
{zosid=00000075} ]
```

After :

Difference :

Additional Information :

Creating Step Conditions

- Overview
  - Runtime Monitoring
- Creating a Step Condition
- Step Condition Details Field Descriptions
- Step Condition Logic
- Example Steps and Condition Codes
  - Example Job and Procedure
  - User Interface Specifications and Actions

Overview

A z/OS JES batch job consists of one or more steps defined by JCL EXEC statements. The JCL EXEC statement identifies the program that the step is to execute. During job execution, steps are executed sequentially under conditions defined by the JCL statements. When a step completes execution, a Step Condition code is recorded by JES. The Step Condition code is either an integer condition code, in the range of 0 - 4095, or an ABEND code. If a step does not execute, which can be for a number of reasons, it is referred to as FLUSH'ed.

A task's status of SUCCESS or FAILED is determined by task exit code processing. The z/OS Task Details Exit Code Processing field specifies the method used to determine the task status for a z/OS batch job. When the **Step Conditions** method is selected, the task status of the z/OS batch job is controlled by the Step Conditions defined in the z/OS Task and parent workflow.

In addition to determining the z/OS Task status, Step Conditions provide a means to control the execution of job steps without any changes to the batch job JCL. A Step Condition definition can specify that job execution is halted, continued, or determined by a console operator. For example, if a multi-step job has a step that ends with a condition code of 8, you could include a Step Condition check to decide whether or not to run the following steps.

Step Conditions can be applied at the z/OS Task level or at the workflow level that apply to all z/OS tasks in that workflow and sub-workflows.

Note

⚠

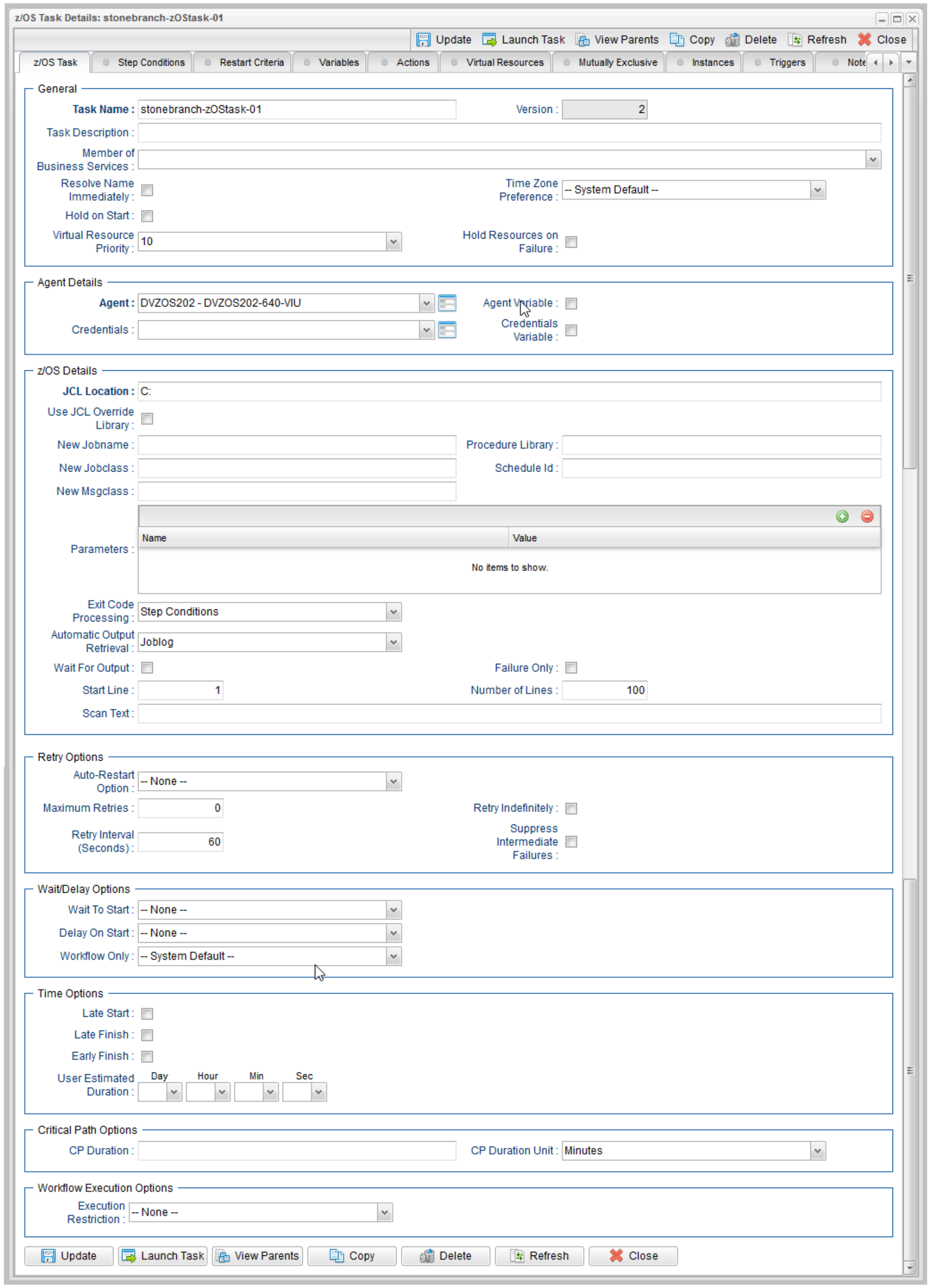
If Step Conditions has been selected for Exit Code Processing, and you then select a different option, a confirmation pop-up displays to warn that any defined Step Conditions will be removed.

Runtime Monitoring

You can monitor Step Conditions at run time via the Activity Monitor, which lets you add or change Step Conditions for a single task instance and then re-run that job.

Creating a Step Condition

Step 1	From the Automation Center navigation pane, select **Tasks > z/OS Tasks**. The z/OS Tasks list displays.
Step 2	Select the task for which you want to create one or more Step Conditions. The z/OS Task Details for that task displays.


Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
z/OS Task
Step Conditions
Restart Criteria
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Note
Name
Value
No items to show.
Day
Hour
Min
Sec

z/OS Task Details: stonebranch-zOStask-01

General

Task Name : stonebranch-zOStask-01
Version : 2
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Agent Details

Agent : DVZOS202 - DVZOS202-640-VIU
Agent Variable : ☐
Credentials :
Credentials Variable : ☐

z/OS Details

JCL Location : C:
Use JCL Override Library : ☐
New Jobname :
Procedure Library :
New Jobclass :
Schedule Id :
New Msgclass :
Parameters :
Exit Code Processing : Step Conditions
Automatic Output Retrieval : Joblog
Wait For Output : ☐
Failure Only : ☐
Start Line : 1
Number of Lines : 100
Scan Text :

Retry Options

Auto-Restart Option : -- None --
Maximum Retries : 0
Retry Indefinitely : ☐
Retry Interval (Seconds) : 60
Suppress Intermediate Failures : ☐

Wait/Delay Options

Wait To Start : -- None --
Delay On Start : -- None --
Workflow Only : -- System Default --

Time Options

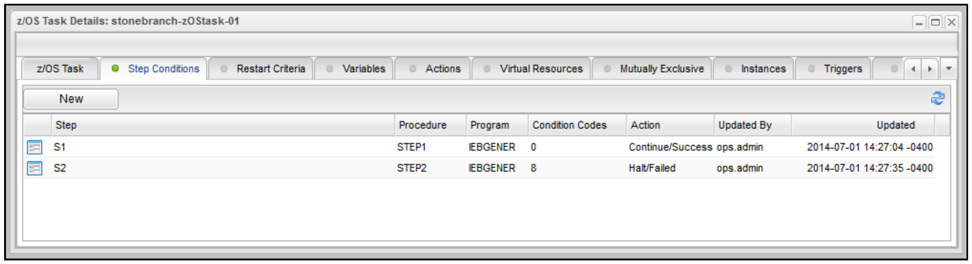
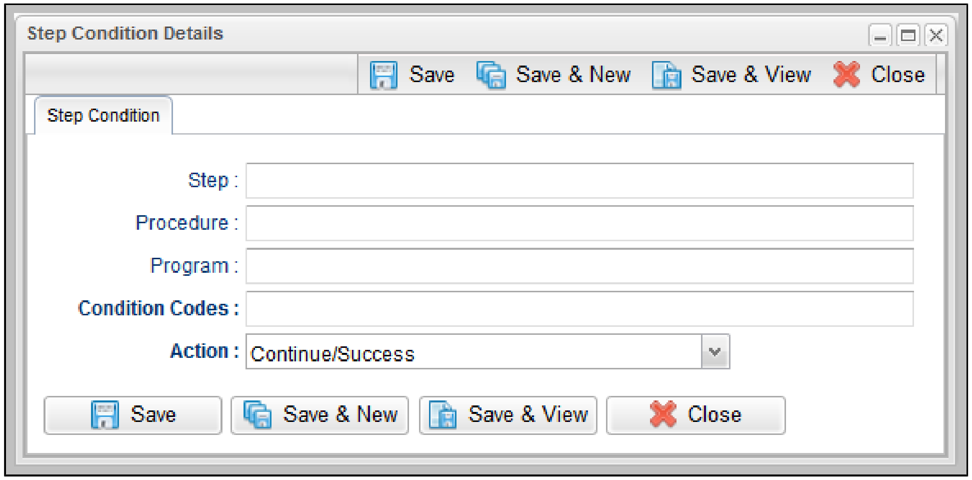
Late Start : ☐
Late Finish : ☐
Early Finish : ☐
User Estimated Duration :

Critical Path Options

CP Duration :
CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

<table>
<tr><td>Step 3</td><td>In the Exit Code Processing field, select Step Conditions from the drop-down list and then click the Update button.</td></tr>
<tr><td>Step 4</td><td>Click the Step Conditions tab. The Step Conditions list displays a list of any currently defined Step Conditions for this task.

z/OS Task Details: stonebranch-zOStask-01
z/OS Task
Step Conditions
Restart Criteria
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
New
<table>
<tr><th>Step</th><th>Procedure</th><th>Program</th><th>Condition Codes</th><th>Action</th><th>Updated By</th><th>Updated</th></tr>
<tr><td>S1</td><td>STEP1</td><td>IEBGENER</td><td>0</td><td>Continue/Success</td><td>ops.admin</td><td>2014-07-01 14:27:04 -0400</td></tr>
<tr><td>S2</td><td>STEP2</td><td>IEBGENER</td><td>8</td><td>Halt/Failed</td><td>ops.admin</td><td>2014-07-01 14:27:35 -0400</td></tr>
</table></td></tr>
<tr><td>Step 5</td><td>Click New. The Step Condition Details pop-up dialog displays.

Step Condition Details
Save
Save & New
Save & View
Close
Step Condition
Step :
Procedure :
Program :
Condition Codes :
Action : Continue/Success
Save
Save & New
Save & View
Close

</td></tr>
<tr><td>Step 6</td><td>Using the field descriptions, below, as a guide, complete the fields as needed.</td></tr>
<tr><td>Step 7</td><td>Click a Save button to save the record and return to the Step Conditions list.</td></tr>
<tr><td>Step 8</td><td>If appropriate, repeat these steps for any additional Step Conditions you want to add.</td></tr>
</table>

Step Condition Details Field Descriptions

The table below describes the fields and buttons in the Step Conditions Details pop-up dialog.

Field Name	Description

Step	Job step name to match. A blank value or an asterisk (`*`) will match any job step name. Generic matching characters asterisk (`*`) and question mark (?) match zero or more characters and one character, respectively.
Procedure	Procedure step name to match. A blank value or an asterisk (`*`) will match any procedure step name. Generic matching characters asterisk (`*`) and question mark (?) match zero or more characters and one character, respectively.
Program	Program name to match. A blank value or an asterisk (`*`) will match any program name. Generic matching characters asterisk (`*`) and question mark (?) match zero or more characters and one character, respectively.
Condition Codes	Conditions codes are integer return codes from the program or ABEND codes. Integer return codes are specified as a comma-separated list of integer values or ranges. Ranges are specified with a dash (`-`) separating the lower and upper bounds of the range. The z/OS job step return code range is 0-4095. ABEND codes are specified directly as either a user ABEND or a system ABEND. The ABEND code must be specified verbatim including leading zeroes. For example: 1,6-4095,Sxxx,Unnnn,JCLERR
Action	Action to take and the task status to set if the Step Condition matches. See Step Condition Logic, below, for an explanation of the actions.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Step Condition Details that let you perform various actions.
Save	Saves a new record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update button	Saves updates to the record.
Refresh	Refreshes any dynamic data displayed in the Details.
Delete button	Deletes the current record.
Close	For pop-up view only; closes the pop-up view of this task.

Step Condition Logic

Step Condition exit code processing starts the task with a task status of SUCCESS. As the job executes and steps complete, the task status can change from SUCCESS to FAILED based on Step Condition definitions and job execution conditions. Once a task status has been changed to FAILED, it cannot be changed back to SUCCESS.

Note

⚠

The Controller searches Step Condition definitions based on their order in the Step Conditions list; the definition at the top of the list is searched first. To change the order of the definitions in the list, drag and drop them to any location.

In addition to Step Condition definitions changing the task status, the following specific job execution conditions will change the task status:

- JCL errors (for examaple, IEFC452I or IEF453I) change the task status to FAILED.
- A job step ABEND that does not match any Step Condition definition changes the task status to FAILED.

As job steps complete execution, Universal Controller searches the list of task-level Step Condition definitions that matches the current step based on the job step name, procedure step name, program name, and the Step Condition code. The search stops when the first definition is found. If a matching Step Condition is found, the Step Condition action is taken. If no matching task-level Step Condition is found, the search continues with the parent workflow-level Step Conditions. If no matching workflow-level Step Condition is found, the search continues with its parent workflow-level Step Conditions and so on until a match is found or all Step Conditions have been search in the hierarchy. If no matching Step Condition is found, the Controller takes no action and normal JES processing of the job continues.

Note

⚠

If a step does not execute, no search is performed for that step in the Step Condition definitions. For example, if a job step FLUSH'es due to a JCL IF statement, the Step Conditions will not be search for the step.

The Step Condition definition action value specifies two attributes, the action to take and the task status. These two attributes are combined into combinations that form the possible action values. The following Step Condition actions are supported:

Continue /Success	Job execution continues and task status is set to SUCCESS.
Continue /Failed	Job execution continues and task status is set to FAILED.
Halt/Failed	Job execution is halted at the current step and task status is set to FAILED.
Askoper	Job execution is stopped and the Controller sends a WTOR message to the console operator requesting a reply on how job execution should proceed. The action is dependent upon the operator reply (see Example 4, below).

During job processing, the Controller issues message UAG1059A to the job log when it matches a Step Condition definition to a step that has completed execution. Message UAG1059A includes the Step Condition definition values including the action that is taken. The message provides an audit record of Step Condition processing that has influenced job execution.

Example Steps and Condition Codes

This section provides a sample job and PROC, followed by example condition code checks for that job.

Example Job and Procedure

Example Job

```
//JOBA  JOB ...
//S1    EXEC ACCTBL10
```

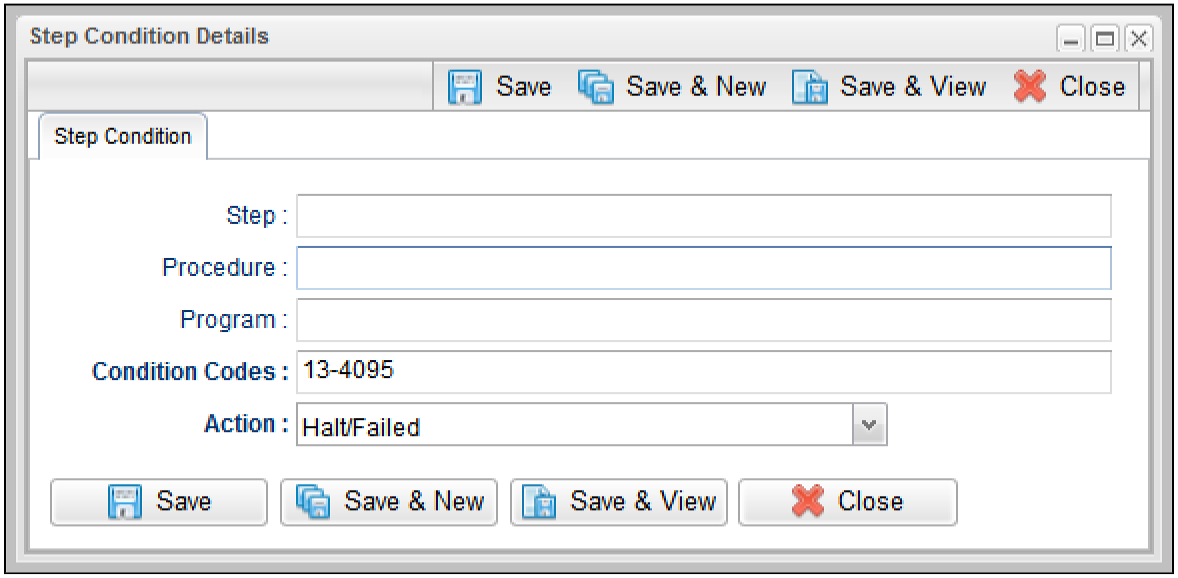
Example Procedure (Cataloged Procedure)

```
//ACCTBL10 PROC
//STEP1    EXEC PGM=BALANCE
//STEP2    EXEC PGM=MERGE
//STEP3    EXEC PGM=IEBGENER
//         PEND
```

User Interface Specifications and Actions

The following examples specify condition code checks for the example job above.

Example 1


Step Condition Details
Save
Save & New
Save & View
Close
Step Condition

Step :

Procedure :

Program :

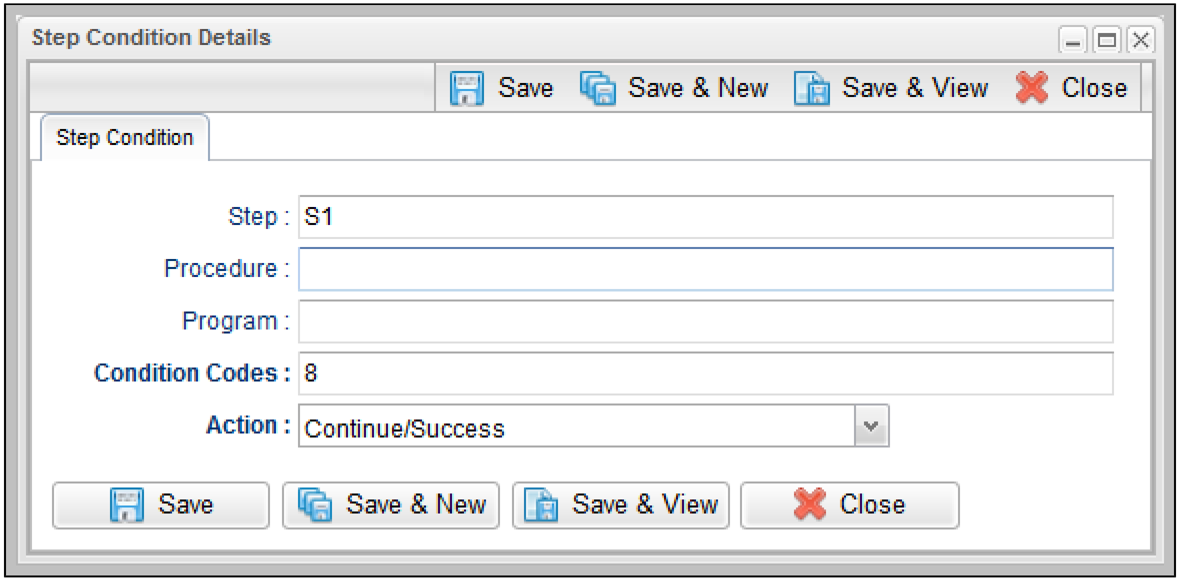
Condition Codes : 13-4095

Action : Halt/Failed

Save
Save & New
Save & View
Close

In this example, if the condition code of any step of the job is greater than 12, the job halts and the task status is set to FAILED.

Example 2


Step Condition Details
Save
Save & New
Save & View
Close
Step Condition

Step : S1

Procedure :

Program :

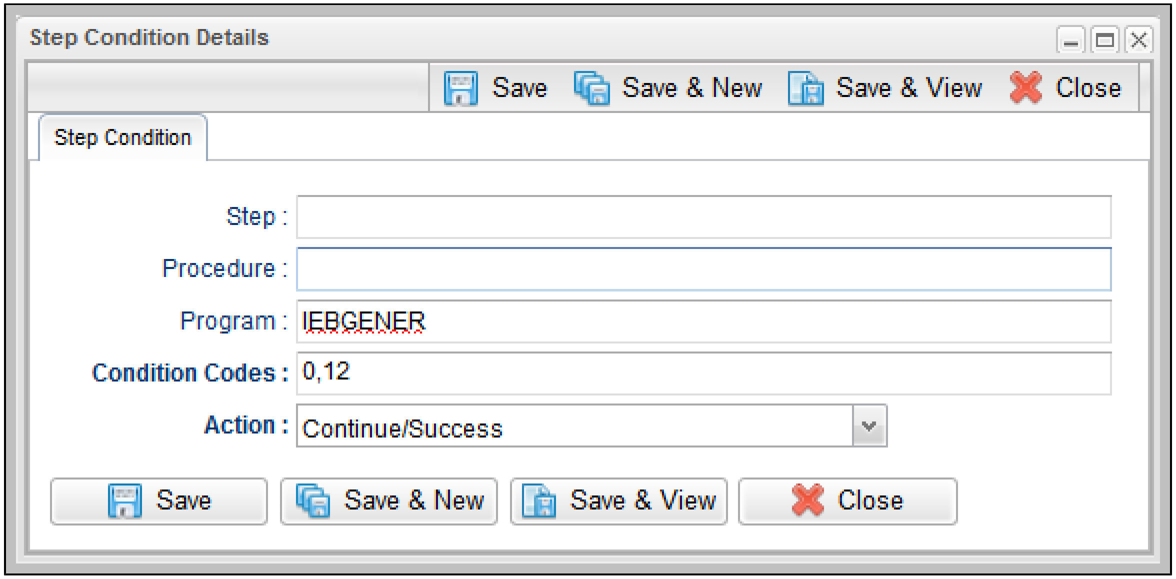
Condition Codes : 8

Action : Continue/Success

Save
Save & New
Save & View
Close

In this example, if the condition code of any procedure step executed as job step S1 is equal to 8, the job continues and the task status is set to SUCCESS.

Example 3


Step Condition Details
Save
Save & New
Save & View
Close
Step Condition

Step :

Procedure :

Program : IEBGENER

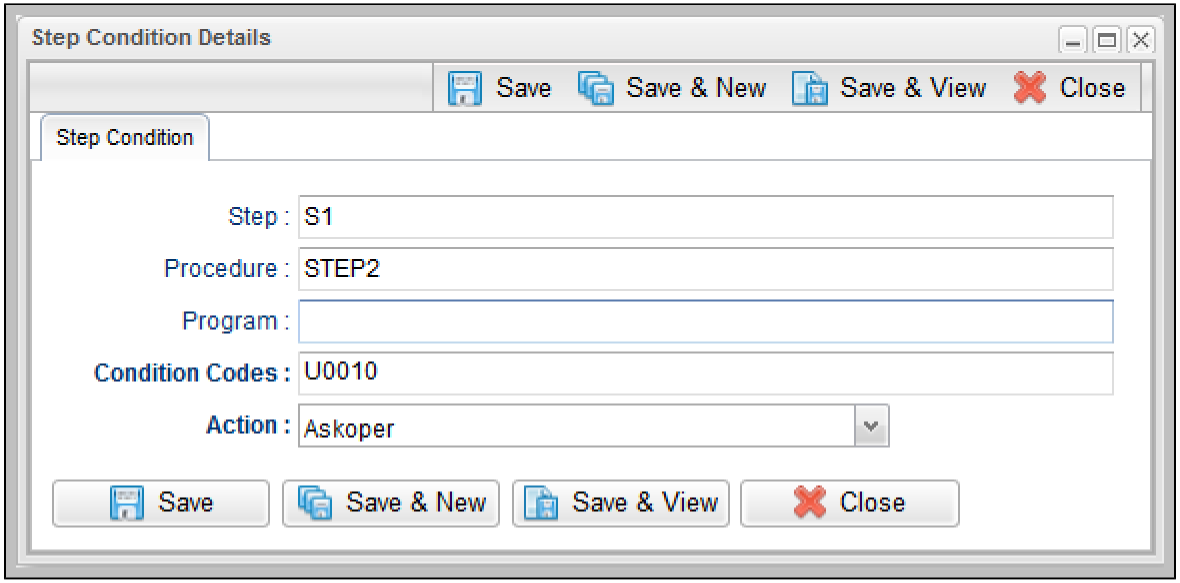
Condition Codes : 0,12

Action : Continue/Success

Save
Save & New
Save & View
Close

In this example, if the condition code of program IEBGENER is 0 or 12, the job continues and the task status is set to SUCCESS.

Example 4



Step : S1
Procedure : STEP2
Program :
Condition Codes : U0010
Action : Askoper

In this example, if the condition code from job step S1, procedure step STEP2 is user ABEND U0010, the operator is alerted with a WTOR console message that specifies the job name, the job step, the procedure step, and the actual condition code. The Controller will take the action specified by the operator reply.

Issued WTOR

```
UAG1058A JOBA    ,S1      ,STEP2   ,Code: U0010 Reply 1:CONT/SUCCESS, 2:CONT/FAIL, 3:HALT/FAIL
```

The UAG1058A WTOR message identifies the job name as JOBA, step name as S1, procedure step name as STEP2, and the Step Condition code as U0010 that matched the Step Condition definition which resulted in the ASKOPER action.

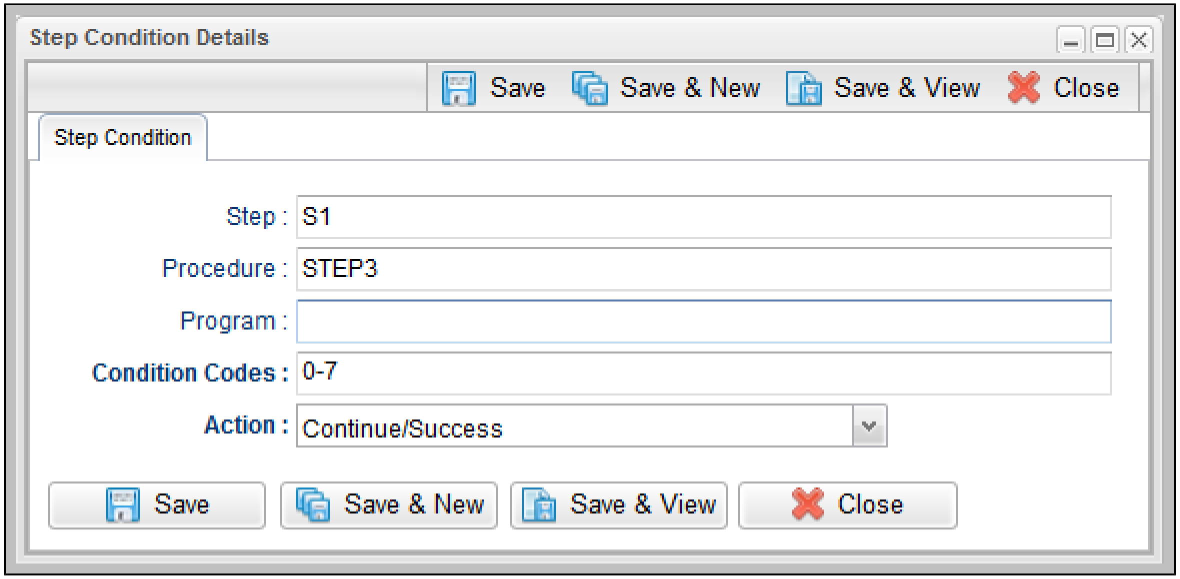
Operator Reply

The operator must reply with one of the following:

- (1) CONTINUE/SUCCESS
- (2) CONTINUE/FAILED
- (3) HALT/FAILED

(See Step Condition Logic for an explanation of these replies.)

Example 5

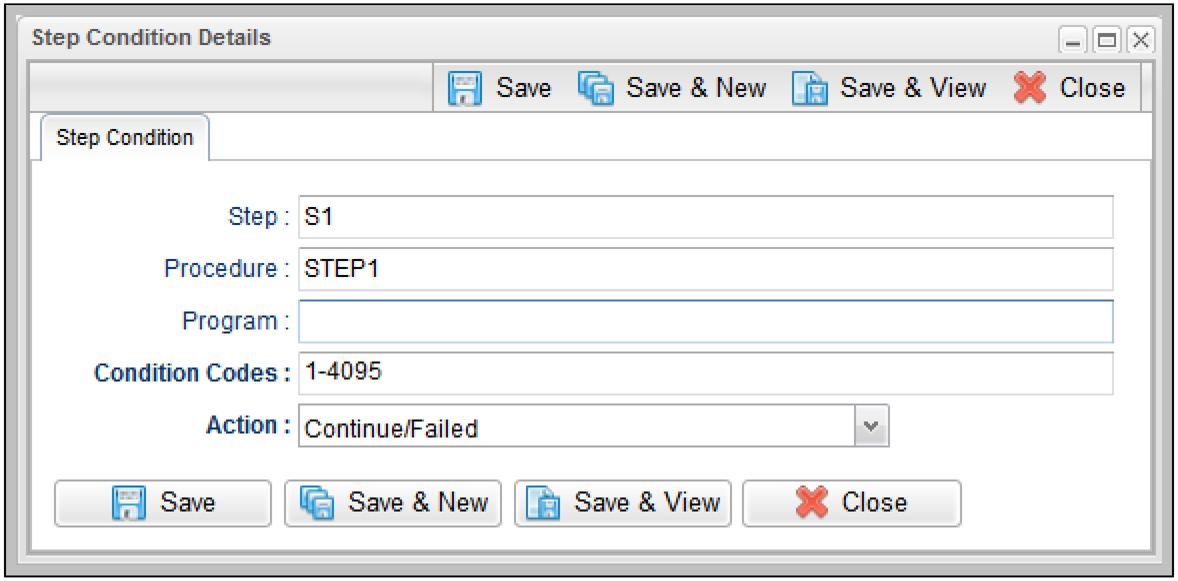

Step Condition Details
Save
Save & New
Save & View
Close
Step Condition

Step : S1
Procedure : STEP3
Program :
Condition Codes : 0-7
Action : Continue/Success

Save
Save & New
Save & View
Close

In this example, if the condition code from job step S1, procedure step STEP3 is within the range of 0-7, the job continues and the task status is set to SUCCESS.

Example 6


Step Condition Details
Save
Save & New
Save & View
Close
Step Condition

Step : S1
Procedure : STEP1
Program :
Condition Codes : 1-4095
Action : Continue/Failed

Save
Save & New
Save & View
Close

In this example, if the condition code from job step S1, procedure step STEP1 is greater than 0, the job continues and the task status is set to FAILED.

Creating Step Actions

- Overview
- Creating a Step Action
- System Operation Step Action Field Descriptions

Overview

You can specify actions to take on z/OS tasks in a Workflow based on step condition codes returned for any of the steps in that z/OS task.

Note

Currently, the only step action that you can take on z/OS tasks in a workflow is a System Operation.

Step actions can be defined only at the Workflow level. They apply to one, more, or all z/OS tasks in that immediate Workflow; they do not apply to any z/OS tasks in sub-workflows. (Every task in a Workflow has a unique Vertex ID, which is how you can tell one task from another if the Workflow has more than one of the exact same task.)

When you create a step action for a task in the Workflow, you specify the name of the task in the Task field. If there is more than one of those tasks in the Workflow, the Vertex Id drop-down list shows the Vertex Id for all tasks. So you can apply the step action to all tasks of that name in the Workflow or just the task with that Vertex Id.

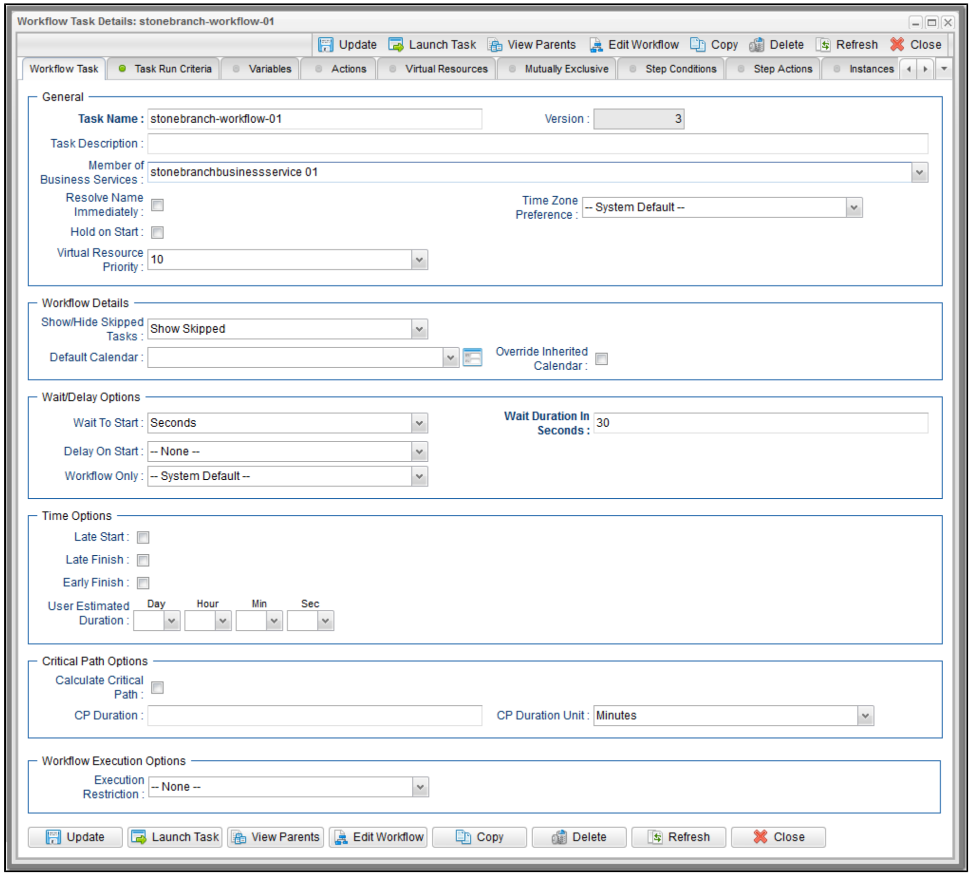
In the Workflow Editor, when you right-click a task, there's a **View/Edit Run Criteria** selection for every task. For z/OS tasks, there's also a **View/Edit z/OS Step Actions** selection.

Every z/OS task is comprised of one or more steps. Each step in a z/OS task ends in a step condition code. System Operation step actions optionally let you send system notifications based on the outcome of each step action with options for None, Operation Failure, Operation Success/Failure, and Operation Success.

Creating a Step Action

Step 1	From the Automation Center navigation pane, select **Tasks > Workflow Tasks**. The Workflow Tasks list displays.

Step 2 Select the Workflow for which you want to create one or more step actions. The Workflow Task Details for that Workflow displays.


Workflow Task Details: stonebranch-workflow-01
Update
Launch Task
View Parents
Edit Workflow
Copy
Delete
Refresh
Close
Workflow Task
Task Run Criteria
Variables
Actions
Virtual Resources
Mutually Exclusive
Step Conditions
Step Actions
Instances

General

Task Name : stonebranch-workflow-01

Version : 3

Task Description :

Member of Business Services : stonebranchbusinessservice 01

Resolve Name Immediately : ☐

Time Zone Preference : -- System Default --

Hold on Start : ☐

Virtual Resource Priority : 10

Workflow Details

Show/Hide Skipped Tasks : Show Skipped

Default Calendar :

Override Inherited Calendar : ☐

Wait/Delay Options

Wait To Start : Seconds

Wait Duration In Seconds : 30

Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

Calculate Critical Path : ☐

CP Duration :

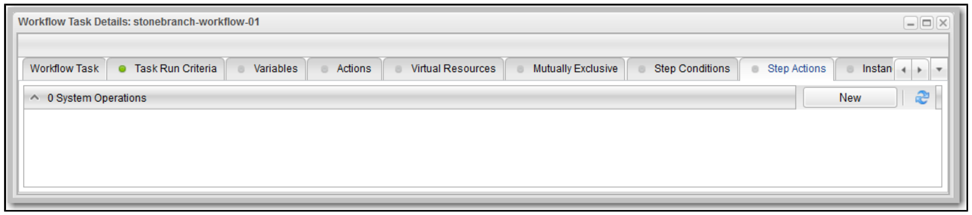
CP Duration Unit : Minutes

Workflow Execution Options

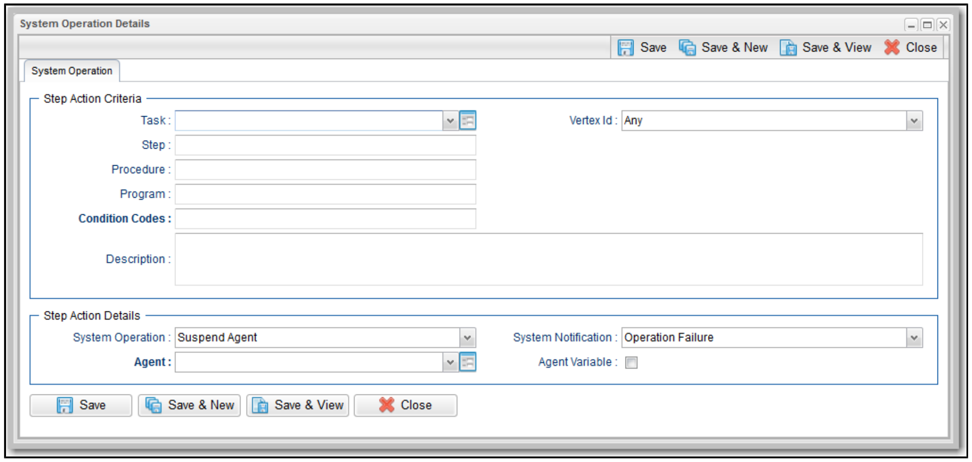
Execution Restriction : -- None --

Update
Launch Task
View Parents
Edit Workflow
Copy
Delete
Refresh
Close

Step 3 Click the **Step Actions** tab. The System Operation Step Actions list displays.


Workflow Task Details: stonebranch-workflow-01
Workflow Task
Task Run Criteria
Variables
Actions
Virtual Resources
Mutually Exclusive
Step Conditions
Step Actions
Instan
New

0 System Operations

Step 4	Click **New**. The System Operation Step Actions pop-up dialog displays.  System Operation Details Save Save & New Save & View Close System Operation Step Action Criteria Step Action Details Task : Vertex Id : Any Step : Procedure : Program : Condition Codes : Description : System Operation : Suspend Agent System Notification : Operation Failure Agent : Agent Variable : ☐
Step 5	Using the field descriptions, below, as a guide, complete the fields as needed.
Step 6	Click a **Save** button to save the record and return to the Step Actions list.
Step 7	If appropriate, repeat these steps for any additional step actions you want to add.

System Operation Step Action Field Descriptions

The following table describes the fields and buttons in the System Operation Step Action Details.

Field Name	Description
Step Action Criteria	This section contains criteria for performing the step action.
Task	Name of a task. In combination with the Vertex Id, it specifies a specific task within the Workflow to which the step action applies; if no task is specified, the step action applies to all z/OS tasks within the Workflow.
Vertex Id	Numerical ID of the task that identifies it uniquely from other tasks of the same type in the Workflow. In combination with the Task, it specifies a specific task within the Workflow to which the step action applies. Options: • **Any** - The action applies to any instance of the specified task in the Workflow. • **<number>** - The action applies only to this instance of the task in the Workflow.
Step	Job step name to match. A blank value or an asterisk (*) will match any job step name. Generic matching characters asterisk (*) and question mark (?) match zero or more characters and one character, respectively.

Procedure	Procedure step name to match. A blank value or an asterisk (`*`) will match any procedure step name. Generic matching characters asterisk (`*`) and question mark (?) match zero or more characters and one character, respectively.
Program	Program name to match. A blank value or an asterisk (`*`) will match any program name. Generic matching characters asterisk (`*`) and question mark (?) match zero or more characters and one character, respectively.
Condition Codes	Conditions codes are integer return codes from the program or ABEND codes. Integer return codes are specified as a comma-separated list of integer values or ranges. Ranges are specified with a dash (`-`) separating the lower and upper bounds of the range. The z/OS job step return code range is 0-4095. ABEND codes are specified directly as either a user ABEND or a system ABEND. The ABEND code must be specified verbatim including leading zeroes.
Description	Description of this System Operation Step Action.
Step Action Details	This section contains assorted detailed information about the step action.
System Operation	Specific system operation to perform. Options: - Suspend Agent - Resume Agent - Suspend Agent Cluster - Resume Agent Cluster - Suspend Cluster Membership - Resume Cluster Membership - Set Agent Task Execution Limit - Set Cluster Task Execution Limit - Set Virtual Resource Limit - Run Task Instance Command - Launch Task - Trigger Now - Enable Trigger - Disable Trigger Note For the Suspend Agent and Resume Agent operations, the user must have the following Agent permissions: - Explicit Read permission, if the Strict Business Service Membership Read Constraints Universal Controller system property is true. - Suspend Agent and Resume Agent commands permission. For the Suspend Agent Cluster, Resume Agent Cluster, Suspend Agent Cluster Membership, and Resume Agent Cluster Membership operations, the user must have the following Agent Cluster permissions: - Explicit Read permission, if the Strict Business Service Membership Read Constraints Universal Controller system property is true. - Suspend Agent, Resume Agent, Suspend Agent Membership, and Resume Agent Membership commands permission.

System Notification	Status of the specified system operation that will trigger a system notification. Options: - None - Operation Failure (default) - Operation Success/Failure - Operation Success Note The Controller must be configured for system notifications in order for system notifications to be triggered.
Agent	If System Operation is **Suspend Agent**, **Resume Agent**, **Suspend Cluster Membership**, **Resume Cluster Membership**, or **Set Agent Task Execution Limit**; Agent for which the system operation is to be performed.
Agent Variable	If System Operation is **Suspend Agent**, **Resume Agent**, **Suspend Cluster Membership**, **Resume Cluster Membership**, or **Set Agent Task Execution Limit**; Indication of whether the **Agent** field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the **Agent** as a variable (checked).
Agent Cluster	If System Operation is **Suspend Agent Cluster**, **Resume Agent Cluster**, **Suspend Cluster Membership**, **Resume Cluster Membership**, or **Set Cluster Task Execution Limit**; Agent Cluster for which the system operation is to be performed.
Agent Cluster Variable	If System Operation is **Suspend Agent Cluster**, **Resume Agent Cluster**, **Suspend Cluster Membership**, **Resume Cluster Membership**, or **Set Cluster Task Execution Limit**; Indication of whether the **Agent Cluster** field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the **Agent Cluster** as a variable (checked).
Task Execution Limit	If System Operation is **Set Agent Task Execution Limit** or **Set Cluster Task Execution Limit**; Specification for whether a Limited or Unlimited number of task instances can be run concurrently on the specified Agent / Agent Cluster. (Default is Unlimited.)
Virtual Resource	If System Operation is **Set Virtual Resource Limit**; Virtual resource for which a virtual resource limit is to be set. Note If the Strict Business Service Membership Read Constraints Universal Controller system property is true, the drop-down list displays only Virtual Resources for which the user has explicit Read permission.
Virtual Resource Variable	If System Operation is **Set Virtual Resource Limit**; Indication of whether the **Virtual Resource** field is a reference field for selecting a specific Virtual Resource (unchecked) or a text field for specifying the **Virtual Resource** as a variable (checked).
Limit	If System Operation is **Set Agent Task Execution Limit** or **Set Cluster Task Execution Limit**, and Task Execution Limit is **Limited**; Number of tasks that can be run concurrently by the specified Agent / Agent Cluster. If System Operation is **Set Virtual Resource Limit**; Virtual resource limit to be set for the specified virtual resource.

Command	If System Operation is **Run Task Instance Command**; Type of task instance command to run. Options: • Cancel • Force Finish • Force Finish (Halt) • Force Finish/Cancel • Force Finish/Cancel (Halt) • Skip • Unskip • Hold • Release • Release Recursive • Clear All Dependencies • Clear Exclusive • Clear Predecessors • Clear Resources • Clear Timewait • Re-run
Instance Lookup Option	If System Operation is **Run Task Instance Command**; Specification for how to search for the task instance to run a command against. Options: • Instance Name • Instance Name/Task • Instance Id • Task
Instance Name	If Instance Lookup Option is **Instance Name** or **Instance Name/Task**; Name of the task instance to run the command against.
Instance Criteria	If Instance Lookup Option is **Instance Name**, **Instance Name/Task**, or **Task**; Additional criteria for selecting a specific task instance if multiple task instances have matching names. • Newest Active Instance • Oldest Active Instance • Newest Instance • Oldest Instance (An Active task instance is an instance that is not in any of these statuses: Skipped, Finished, Success.) Note An Unskip command can use only the Newest Instance and Oldest Instance criteria; an active instance cannot be unskipped.
Task Reference	• If Instance Lookup Option is **Instance Name/Task** or **Task**; Name of the task for which the task instance was run. • If System Operation is **Launch Task**; Name of the task to launch.
Task Reference Variable	If Instance Lookup Option is **Instance Name/Task** or **Task**, or if System Operation is Launch Task; Indication of whether the **Task Reference** field is a reference field for selecting a specific Task (unchecked) or is a text field for specifying the task as a variable (checked). For a variable, use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions.

Instance ID	If Instance Lookup Option is **Instance ID**; ID of task instance to run the command against. The instance ID (sysid) is a 32-character universally unique identifier. You can use the **`${ops_task_id}`** variable or **`${_siblingid('mytask')}`** function to get the instance id.
Trigger Reference	If System Operation is Trigger Now, Enable Trigger, or Disable Trigger; Name of the trigger.
Trigger Reference Variable	If System Operation is Trigger Now, Enable Trigger, or Disable Trigger; Indication of whether the **Trigger Reference** field is a reference field for selecting a specific Trigger (unchecked) or is a text field for specifying the trigger as a variable (checked). For a variable, use the format: `${variable name}`. The variable must be a supported type as described inVariables and Functions.
Override Variables	If System Operation is Launch Task or Trigger Now; Variables to override.
Override Variables Resolution Disabled	If System Operation is Launch Task or Trigger Now; Indication of whether or not Override Variables resolution should be disabled to allow for passing unresolved variable values. • If enabled (checked), Override Variables will be left unresolved. Any unresolved variables will be resolved in the context of the launched or triggered task instance. • If disabled (unchecked), Override Variables will be resolved prior to the execution of the Launch Task or Trigger Now System Operation.
Override Trigger Date /Time	If System Operation is Trigger Now, Indication of whether or not to override the date/time of the trigger.
Override Date Offset	If Override Trigger Date Time is selected; Override date offset.
Override Time	If Override Trigger Date Time is selected; Override time.
Workflow Instance Name Condition	If System Operation is Run Task Instance Command; Optional. Type of condition for the name of the parent workflow task instance that contains the task on which to perform the specified action. The action will be performed only on a task instance in a parent workflow task instance meeting the specified condition value. Options: • Equals • Starts With • Contains • Ends With For the selected condition (the default is Equals), a corresponding field displays (see below) that allows you to enter a value for that condition.
Workflow Instance Name Equals	If Workflow Instance Name Condition = Equals; Exact name of a parent workflow task instance containing the task. Variables are supported.
Workflow Instance Name Starts With	If Workflow Instance Name Condition = Starts With; Character string at the start of the name of a parent workflow task instance containing the task. Variables are supported.
Workflow Instance Name Contains	If Workflow Instance Name Condition = Contains; Character string in the name of a parent workflow task instance containing the task. Variables are supported.

Workflow Instance Name Ends With	If Workflow Instance Name Condition = Ends With; Character string at the end of the name of a parent workflow task instance containing the task. Variables are supported.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Step Action Details that let you perform various actions.
Save	Saves the new System Operation Step Action Details record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
Update	Saves updates to the record.
Refresh	Refreshes any dynamic data displayed in the Details.
Delete	Deletes the current record.
Close	For pop-up view only; closes the pop-up view of this task.

Creating Restart Criteria

- Overview
- Creating Restart Criteria
- Restart Criteria Field Descriptions
- Restart Criteria Logic
- Restart Criteria Details - Directives

Overview

A z/OS JES batch job consists of one or more steps defined by JCL EXEC statements. The JCL EXEC statement identifies the program that the step is to execute. During job execution, steps are executed sequentially under conditions defined by the JCL statements.

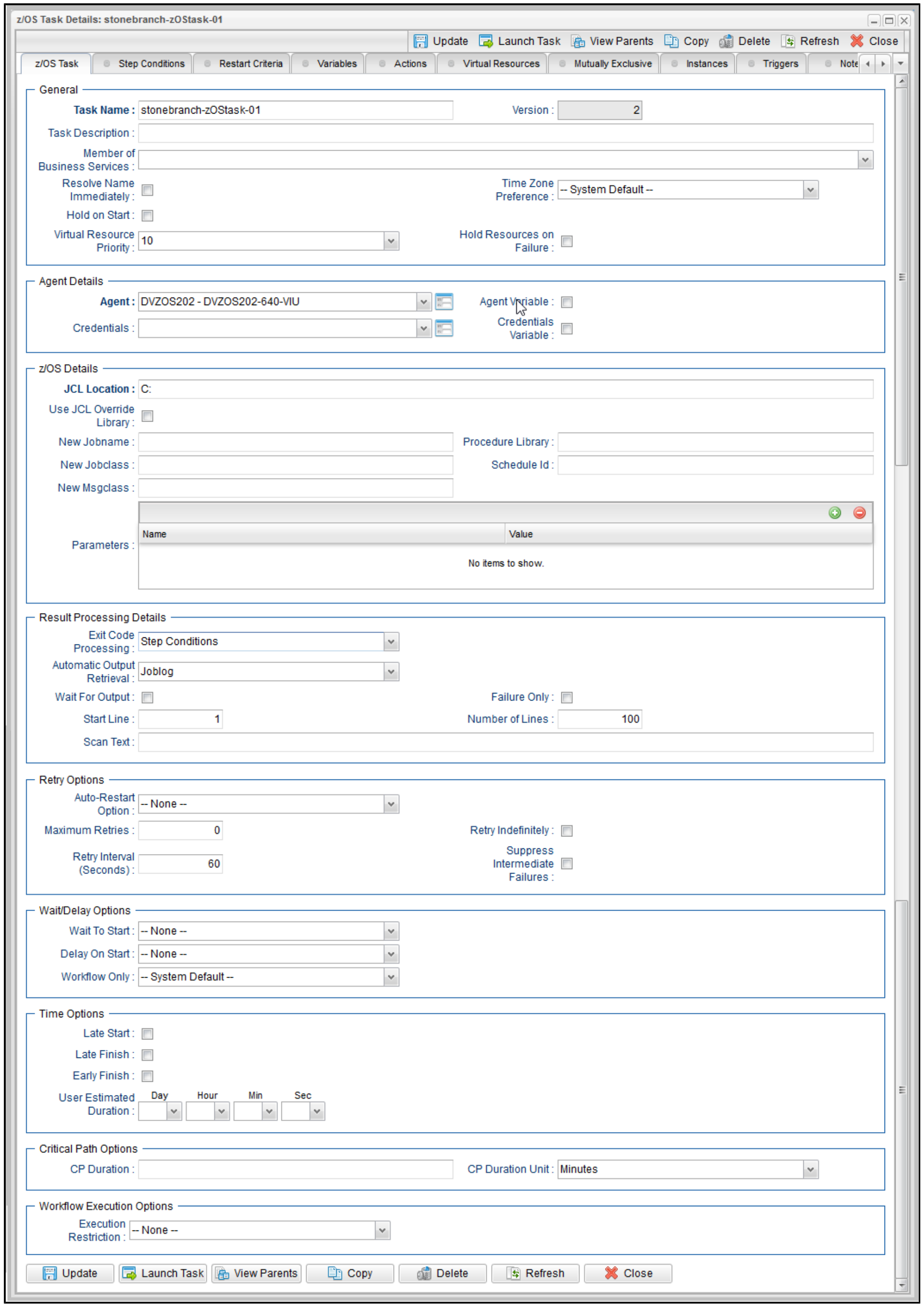
When a task ends in a failed state, some or all of the job steps may need to be re-run. The set of steps that should be re-run (if any) may vary depending on how and where the task failed. If the task is defined with Auto-Restart Option = **Use Restart Criteria**, the Restart Criteria is used to select the appropriate steps to restart based on a particular failure scenario.

Note

If Use Restart Criteria has been selected for Auto-Restart Option, and you then select a different option, a confirmation pop-up displays to warn that any defined Restart Criteria will be removed.

Creating Restart Criteria

Step 1	From the Automation Center navigation pane, select **Tasks > z/OS Tasks**. The z/OS Tasks list displays.
Step 2	Select the task for which you want to create one or more Restart Criteria. The z/OS Task Details for that task displays.


z/OS Task Details: stonebranch-zOStask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
z/OS Task
Step Conditions
Restart Criteria
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Note

General

Task Name : stonebranch-zOStask-01
Version : 2
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Agent Details

Agent : DVZOS202 - DVZOS202-640-VIU
Agent Variable : ☐
Credentials :
Credentials Variable : ☐

z/OS Details

JCL Location : C:
Use JCL Override Library : ☐
New Jobname :
Procedure Library :
New Jobclass :
Schedule Id :
New Msgclass :
Parameters :

Name	Value
No items to show.	

Result Processing Details

Exit Code Processing : Step Conditions
Automatic Output Retrieval : Joblog
Wait For Output : ☐
Failure Only : ☐
Start Line : 1
Number of Lines : 100
Scan Text :

Retry Options

Auto-Restart Option : -- None --
Maximum Retries : 0
Retry Indefinitely : ☐
Retry Interval (Seconds) : 60
Suppress Intermediate Failures : ☐

Wait/Delay Options

Wait To Start : -- None --
Delay On Start : -- None --
Workflow Only : -- System Default --

Time Options

Late Start : ☐
Late Finish : ☐
Early Finish : ☐
User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :
CP Duration Unit : Minutes

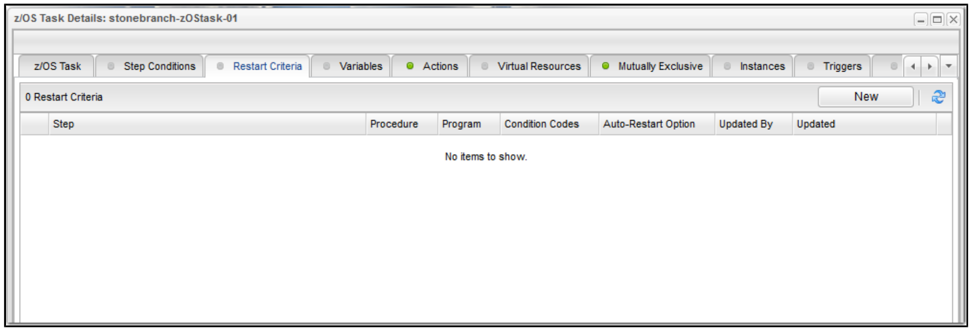
Workflow Execution Options

Execution Restriction : -- None --

Update
Launch Task
View Parents
Copy
Delete
Refresh
Close

Step 3 In the Auto-Restart Option field, select **Use Restart Criteria** from the drop-down list and then click the **Update** button.

Step 4 Click the Restart Criteria tab. The Restart Criteria list displays.

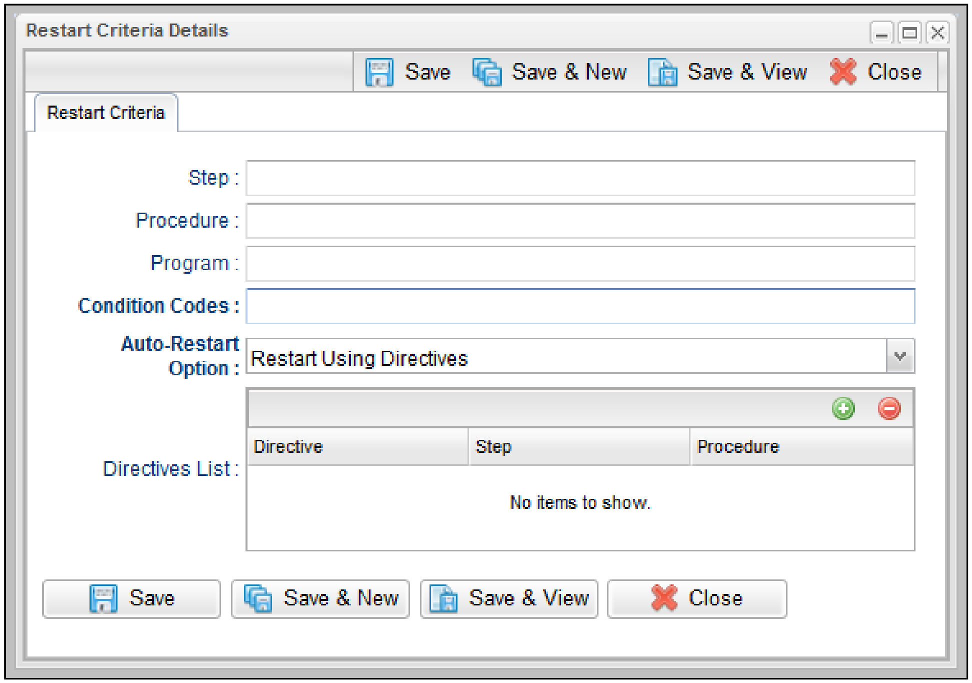

z/OS Task Details: stonebranch-zOStask-01
z/OS Task
Step Conditions
Restart Criteria
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
New

0 Restart Criteria

Step	Procedure	Program	Condition Codes	Auto-Restart Option	Updated By	Updated

No items to show.

Step 5 Click **New**. Restart Criteria Details displays.


Restart Criteria Details
Save
Save & New
Save & View
Close
Restart Criteria
Step :
Procedure :
Program :
Condition Codes :
Directives List :
Directive
Step
Procedure
Save
Save & New
Save & View
Close

Auto-Restart Option : Restart Using Directives

No items to show.

Step 6 Using the field descriptions provided below as a guide, complete the fields as needed.

Step 7 Click a **Save** button to save the record and return to the Restart Criteria list.

Step 8 If appropriate, repeat these steps for any additional Restart Criteria that you want to add.

Restart Criteria Field Descriptions

The following table describes the fields and buttons in the Restart Criteria Details.

Field Name	Description
Step	Job step name to match. A blank value or an asterisk (*) will match any job step name. Generic matching characters asterisk (*) and question mark (?) match zero or more characters and one character, respectively.
Procedure	Procedure step name to match. A blank value or an asterisk (*) will match any procedure step name. Generic matching characters asterisk (*) and question mark (?) match zero or more characters and one character, respectively.
Program	Program name to match. A blank value or an asterisk (*) will match any program name. Generic matching characters asterisk (*) and question mark (?) match zero or more characters and one character, respectively.
Condition Codes	Conditions codes are integer return codes from the program or ABEND codes. Integer return codes are specified as a comma-separated list of integer values or ranges. Ranges are specified with a dash (-) separating the lower and upper bounds of the range. The z/OS job step return code range is 0-4095. ABEND codes are specified directly as either a user ABEND or a system ABEND. The ABEND code must be specified verbatim including leading zeroes. For example: 1,6-4095,Sxxx,Unnnn,JCLERR
Auto-Restart Option	Method of step selection to perform for the restart. See Restart Criteria Logic, below, for an explanation of the options.
Directives List	(See Restart Criteria Details - Directives, below.)
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Restart Criteria Details that let you perform various actions.
Save	Saves a new record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
Update	Saves updates to the record.

Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this record.

Restart Criteria Logic

Restart Criteria are processed when a task transitions to a Failed status, provided that:

- Auto-Restart Option = **Use Restart Criteria**.
- Maximum Retries = greater than zero.

When Restart Criteria processing begins, the Controller will search the list of Restart Criteria definitions to find a match for the current failure scenario. Matching is based on job step name, procedure step name, program name, and the step condition code. The search stops when the first definition is found. If a matching Restart Criteria is found, the Auto-Restart Option for that Restart Criteria is performed. If no matching Restart Criteria is found, the Controller takes no action and no job steps will be selected for restart.

Note

The Controller searches Restart Criteria definitions based on their order in the Restart Criteria list; the definition at the top of the list is searched first. To change the order of the definitions in the list, drag and drop them to any location.

The Restart Criteria Details **Auto-Restart Option** specifies how steps will be selected for restart.

The following Auto-Restart Options are supported:

Restart From First Job Step	All restartable job steps, from first to last, will be selected for restart.
Restart From Matching Job Step	All restartable job steps, from the step that matched the Restart Criteria to the last job step, will be selected for restart.
Restart Using Directives	Job steps will be selected for restart based on the directives specified in the Restart Criteria directive table.

Restart Criteria Details - Directives

The following table describes the fields and button in the Directives section of the Restart Criteria Details.

Field Name	Description

Directive	Specifies a directive for step selection. Options: - **Start** - Directive used to specify the starting step in a range of steps selected for restart. The directive table can contain zero or one Start directives. If a start directive is not specified, the first job step will be used as the starting step. - **Skip** - Directive used to specify a step that should be skipped. Skipped steps will not be restarted. The directive table can contain zero or more Skip directives. - **End** - Directive used to specify the ending step in a range of steps that will be selected for restart. The directive table can contain zero or one End directives. If an end directive is not specified, the last job step will be used as the ending job step.
Step	The directive step optionally specifies: 1. A relative step number. Relative step numbers begin with **+** or **-**, followed by some number of steps to offset from the step matched by the Restart Criteria. A value of **-0** or **+0** indicated that the directive is referring to the job step that matched the Restart Criteria. Relative step numbers are mutually exclusive with the Procedure field. If a relative step number is specified, no matching is performed. The directive will apply to an explicit offset from the job step that matched the Restart Criteria definition. 2. The job step name to match. A blank value or an asterisk (*) will match any job step name. Generic matching characters asterisk (*) and question mark (?) match zero or more characters and one character, respectively.
Procedure	The procedure step name to match. A blank value or an asterisk (*) will match any procedure step name. Generic matching characters asterisk (*) and question mark (?) match zero or more characters and one character, respectively.
Add button	Adds the directive defined by the fields above to the directive table.

Universal Command Task

- Before You Begin
- Built-In Variables
- Creating a Universal Command Task
    - Universal Command Task Details
    - Universal Command Task Details Field Descriptions
- Viewing a Universal Command Task Instance
    - Universal Command Task Instance Details
    - Universal Command Task Instance Details Field Descriptions
- Output Redirection
- Running a Universal Command Task
- Monitoring Task Execution

Before You Begin

The Universal Command task allows you to run a platform-specific application on a machine where Universal Agent is running. Universal Command is functionality provided by the Agent that serves as an agent process. Universal Command runs on any supported platform: z/OS, Linux/Unix, and Windows.

To run a Universal Command task, you must first complete the following:

- Install an Agent on the target machine.
- Launch the Agent. When the Agent connects with the Controller, it automatically creates an Agent resource definition in the Controller database.

Note

If you are running multiple **ubroker** started tasks and want to run a Universal Command task on a specific **ubroker**, you must specify the service port number associated with that **ubroker** in the Universal Command Options field on the Universal Command Task Details. The syntax is **`-port nnnn`**.

Built-In Variables

The following built-in variables can be used in a Universal Command task to pass data where appropriate:

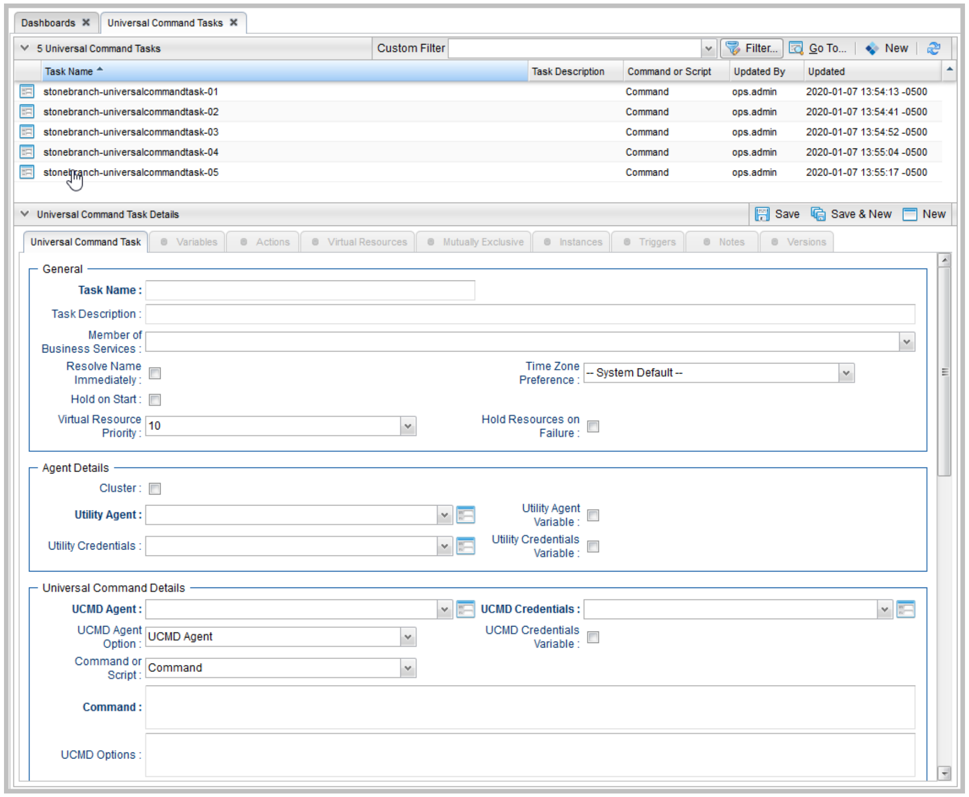
- Agent-Based Task Instance variables
- Task Instance variables

Creating a Universal Command Task

Step 1

From the Automation Center navigation pane, select **Tasks > Universal Command Tasks**. The Universal Command Tasks list displays a list of all currently defined Universal Command tasks.

Below the list, Universal Command Task Details for a new Universal Command task displays.



Dashboards
Universal Command Tasks
5 Universal Command Tasks
Custom Filter
Filter...
Go To...
New
Universal Command Task Details
Save
Save & New
New
Universal Command Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Agent Details
Universal Command Details

Task Name	Task Description	Command or Script	Updated By	Updated
stonebranch-universalcommandtask-01		Command	ops.admin	2020-01-07 13:54:13 -0500
stonebranch-universalcommandtask-02		Command	ops.admin	2020-01-07 13:54:41 -0500
stonebranch-universalcommandtask-03		Command	ops.admin	2020-01-07 13:54:52 -0500
stonebranch-universalcommandtask-04		Command	ops.admin	2020-01-07 13:55:04 -0500
stonebranch-universalcommandtask-05		Command	ops.admin	2020-01-07 13:55:17 -0500

Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐
Cluster : ☐
Utility Agent :
Utility Agent Variable : ☐
Utility Credentials :
Utility Credentials Variable : ☐
UCMD Agent :
UCMD Credentials :
UCMD Agent Option : UCMD Agent
UCMD Credentials Variable : ☐
Command or Script : Command
Command :
UCMD Options :

Step 2

Enter/select Details for a new Universal Command task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

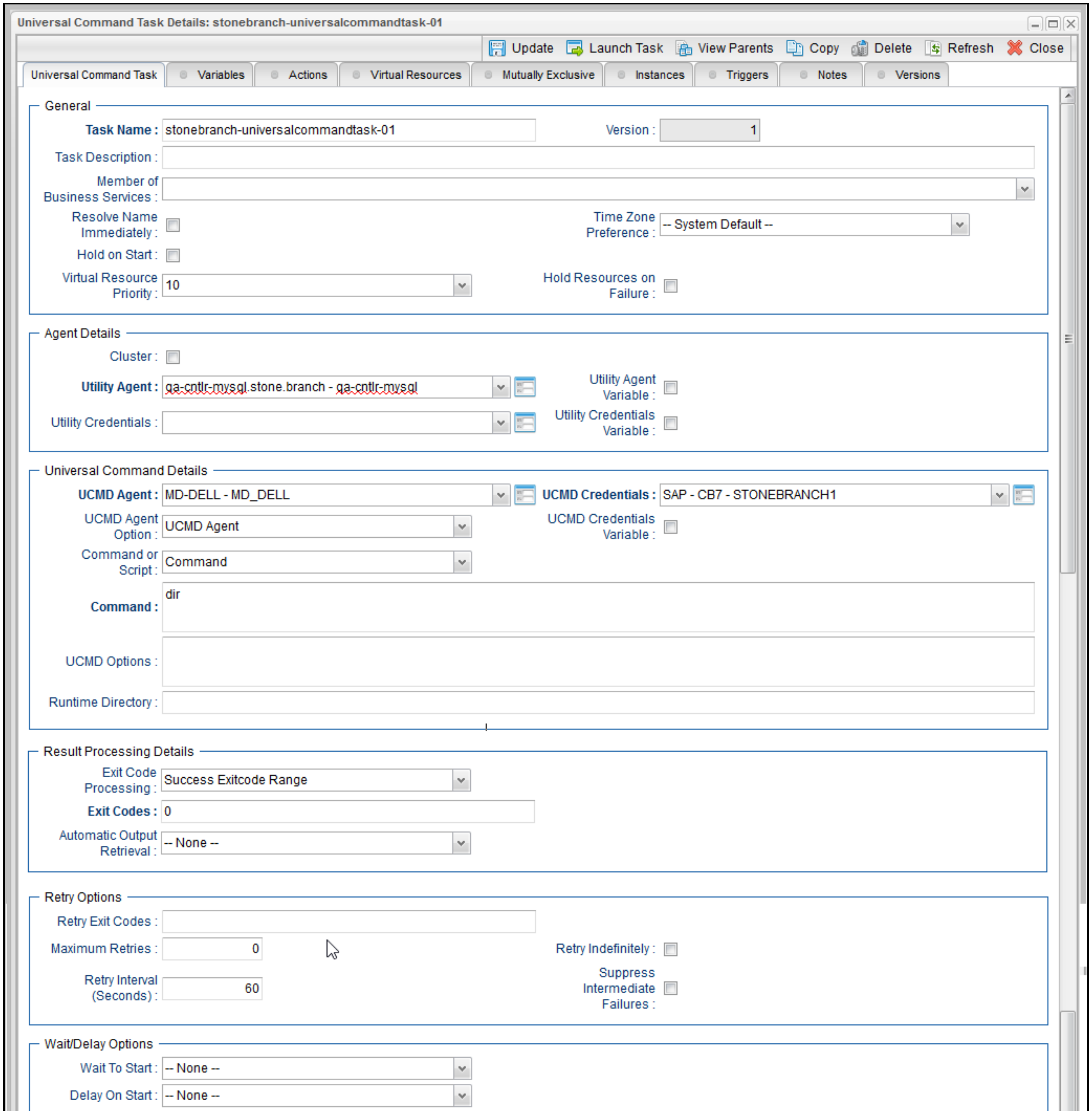
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Universal Command Task Details

The following Universal Command Task Details is for an existing Universal Command task.

Depending on the values that you enter / select for these fields, and whether or not the Universal Command task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Universal Command Task Details.


Universal Command Task Details: stonebranch-universalcommandtask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Universal Command Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

General

Task Name : stonebranch-universalcommandtask-01
Version : 1
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Agent Details

Cluster : ☐
Utility Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Utility Agent Variable : ☐
Utility Credentials :
Utility Credentials Variable : ☐

Universal Command Details

UCMD Agent : MD-DELL - MD_DELL
UCMD Credentials : SAP - CB7 - STONEBRANCH1
UCMD Agent Option : UCMD Agent
UCMD Credentials Variable : ☐
Command or Script : Command
Command : dir
UCMD Options :
Runtime Directory :

Result Processing Details

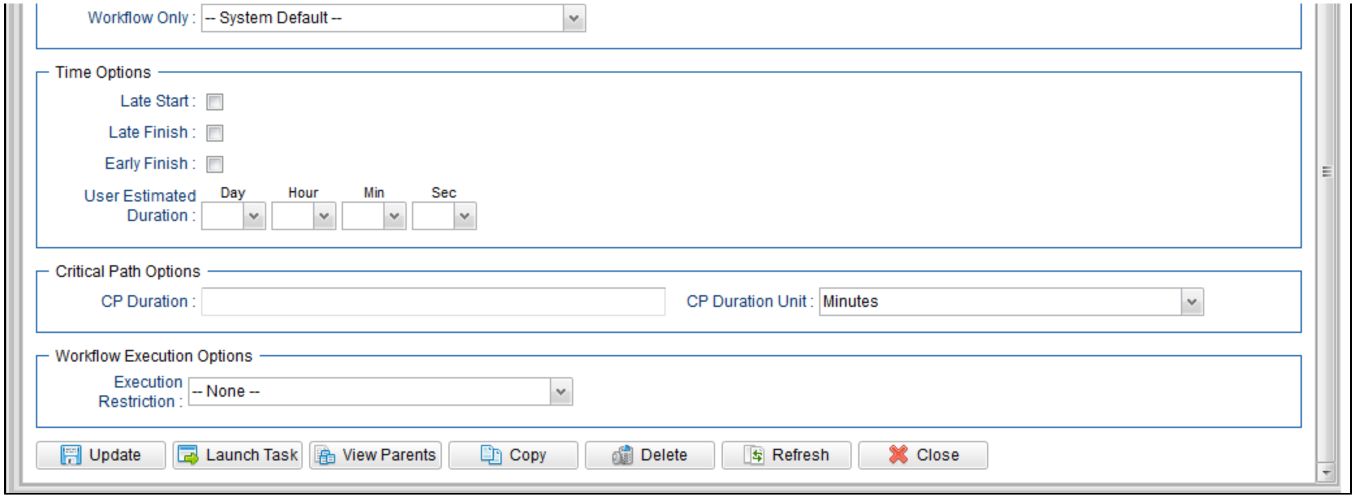
Exit Code Processing : Success Exitcode Range
Exit Codes : 0
Automatic Output Retrieval : -- None --

Retry Options

Retry Exit Codes :
Maximum Retries : 0
Retry Indefinitely : ☐
Retry Interval (Seconds) : 60
Suppress Intermediate Failures : ☐

Wait/Delay Options

Wait To Start : -- None --
Delay On Start : -- None --



Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

Universal Command Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Universal Command Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting a Utility Agent Cluster is required. If Cluster is selected, selecting a Utility Agent is not required unless Utility Agent Variable is selected.
Utility Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify a Utility Agent, you must specify a Utility Agent Cluster or Utility Cluster Broadcast.
Utility Agent Variable	If enabled, the Utility Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the **Utility Agent Variable** field to **Yes** and specify the Utility Agent variable in the **Utility Agent Unresolved** field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the **Utility Agent Variable** field to **No** and specify the Utility Agent reference in the **Utility Agent** field.

Utility Agent Cluster	If Cluster is selected; Group of Agents, one of which the Controller will choose to run this task. You can specify a Utility Agent Cluster in addition to or in place of a specific Utility Agent. If you specify a Utility Agent and a Utility Agent Cluster, the Controller first tries to run the task on the specific Utility Agent. If the Utility Agent is not available, the Controller reverts to the Utility Agent Cluster. See Agent Clusters for more information.
Utility Agent Cluster Variable	Indication of whether the Utility Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Utility Agent Cluster as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the **Utility Agent Cluster Variable** field to **Yes** and specify the Utility Agent Cluster variable in the **Utility Agent Cluster Unresolved** field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the **Utility Agent Cluster Variable** field to **No** and specify the Utility Agent Cluster reference in the **Utility Agent Cluster** field.
Utility Credentials	Login credentials that the Agent will use to access the Universal Command server machine. Required if the Agent Credentials Required Universal Controller system property is true.
Utility Credentials Variable	Indication of whether the Utility Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Utility Credentials as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Utility Credentials reference to using a Utility Credentials variable, you must change the **Utility Credentials Variable** field to **Yes** and specify the Utility Credentials variable in the **Utility Credentials Unresolved** field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the **Utility Credentials Variable** field to **No** and specify the Utility Credentials reference in the **Utility Credentials** field.
Universal Command Details	This section contains assorted detailed information about the task.
UCMD Agent	Depending on the value in the UCMD Agent Option field, this field contains either: • Record name from the UCMD Agent table. • Variable that will be resolved when the task is launched. • Host name of a machine where the UCMD Agent is running.

UCMD Agent Option	Specifies how the name of the UCMD Agent is being supplied in the UCMD Agent field. Options: - UCMD Agent - UCMD Agent record is selected from the UCMD Agent table. - UCMD Agent Variable - UCMD Agent field contains a variable that will be resolved when the task is launched. - UCMD Agent Hostname - UCMD Agent field contains the host name where the UCMD Agent is running. The host name must be accessible by the Controller.
UCMD Credentials	Login credentials that Controller will use to access the remote machine where the UCMD Agent is running.
UCMD Credentials Variable	Indication of whether the UCMD Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the UCMD Credentials as a variable (checked). Use the format: ${variablename}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a UCMD Credentials reference to using a UCMD Credentials variable, you must change the **UCMD Credentials Variable** field to **Yes** and specify the UCMD Credentials variable in the **UCMD Credentials Unresolved** field. Conversely, to change from using a UCMD Credentials variable to using a UCMD Credentials reference, you must change the **UCMD Credentials Variable** field to **No** and specify the UCMD Credentials reference in the **UCMD Credentials** field.
Command or Script	Specifies whether a single command or a script is being executed. Options: - Command (default) - Script
Command	Required if Command or Script = Command; Command being executed on the remote machine. Variables supported.
Script File	Required if Command or Script = Script; Path and filename of the script file that will be executed on the remote machine.
Script Options	If Command or Script = Script; Optional. One or more command line options to pass to the script file.
UCMD Options	Any UCMD options needed by the program to execute properly. Variables supported.
Runtime Directory	Directory from which the application should be executed. Variables supported.

Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. • Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.

Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • File Attach the file specified in the Output File field. • Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. • If a **Start Line** value is not specified, the default is 1. • If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.
Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.

Retry Exit Codes	Exit code range for which an auto-retry of tasks in FAILED status will occur. Exit code ranges must be in the same format as ranges specified in the Exit Codes field. Maximum Retries must be greater than 0. If this field is empty, any exit code potentially will cause a retry. Variables are supported.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: - - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) - Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. - No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note You cannot delete a task if it is either: - Specified in an enabled Trigger. - The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

<table>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:
<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.
If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

Viewing a Universal Command Task Instance

When a Universal Command task is launched, the Controller creates a task instance record of that task.

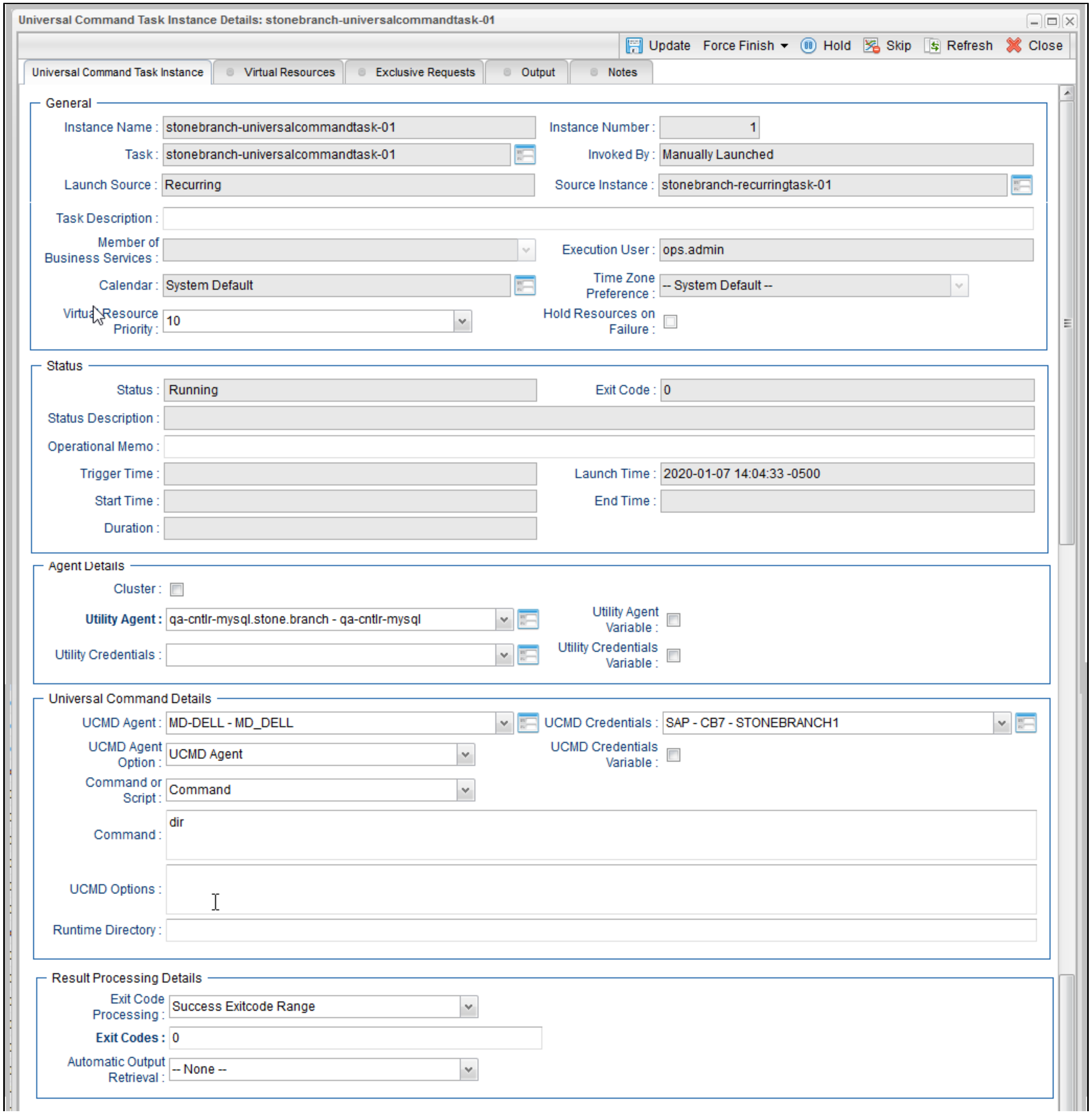
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Universal Command Task Details for that task
- Activity Monitor
- Task Instances list

Universal Command Task Instance Details

The following Universal Command Task Instance Details contains information on the execution of the task shown in the Universal Command Task Details.



Universal Command Task Instance Details: stonebranch-universalcommandtask-01

General

Instance Name : stonebranch-universalcommandtask-01
Instance Number : 1
Task : stonebranch-universalcommandtask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Running
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-07 14:04:33 -0500
Start Time :
End Time :
Duration :

Agent Details

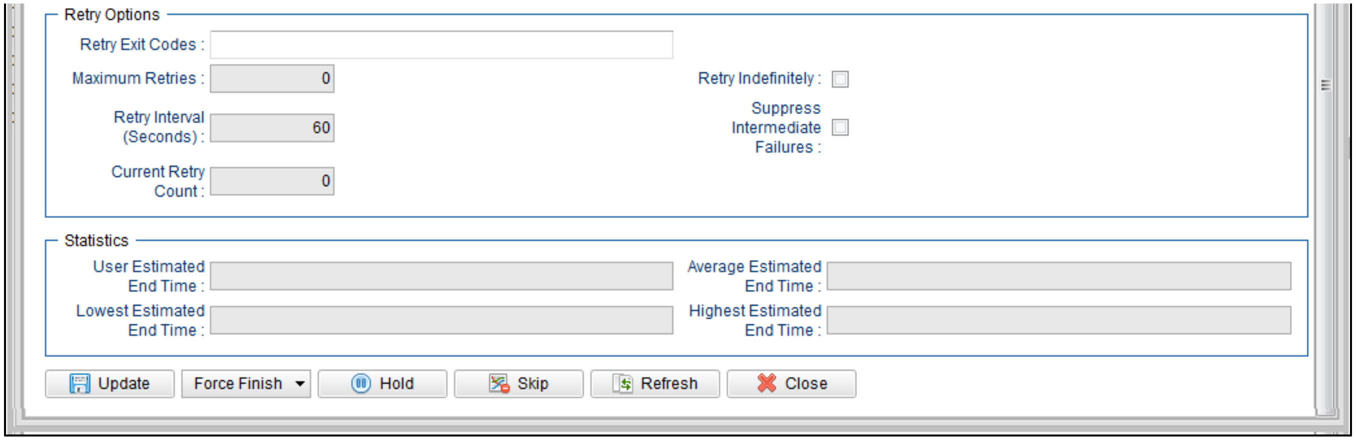
Cluster : ☐
Utility Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Utility Agent Variable : ☐
Utility Credentials :
Utility Credentials Variable : ☐

Universal Command Details

UCMD Agent : MD-DELL - MD_DELL
UCMD Credentials : SAP - CB7 - STONEBRANCH1
UCMD Agent Option : UCMD Agent
UCMD Credentials Variable : ☐
Command or Script : Command
Command : dir
UCMD Options :
Runtime Directory :

Result Processing Details

Exit Code Processing : Success Exitcode Range
Exit Codes : 0
Automatic Output Retrieval : -- None --



Retry Options

Retry Exit Codes :

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Current Retry Count : 0

Statistics

User Estimated End Time :

Average Estimated End Time :

Lowest Estimated End Time :

Highest Estimated End Time :

Universal Command Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Universal Command Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.

Launch Source	System-supplied; Source from which this Recurring task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)

Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting a Utility Agent Cluster is required. If Cluster is selected, selecting a Utility Agent is not required unless Utility Agent Variable is selected.
Utility Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify a Utility Agent, you must specify a Utility Agent Cluster or Utility Cluster Broadcast.
Utility Agent Variable	If enabled, the Utility Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the **Utility Agent Variable** field to **Yes** and specify the Utility Agent variable in the **Utility Agent Unresolved** field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the **Utility Agent Variable** field to **No** and specify the Utility Agent reference in the **Utility Agent** field.

Utility Agent Cluster	If Cluster is selected; Group of Agents, one of which the Controller will choose to run this task. You can specify a Utility Agent Cluster in addition to or in place of a specific Utility Agent. If you specify a Utility Agent and a Utility Agent Cluster, the Controller first tries to run the task on the specific Utility Agent. If the Utility Agent is not available, the Controller reverts to the Utility Agent Cluster. See Agent Clusters for more information.
Utility Agent Cluster Variable	Indication of whether the Utility Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Utility Agent Cluster as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the **Utility Agent Cluster Variable** field to **Yes** and specify the Utility Agent Cluster variable in the **Utility Agent Cluster Unresolved** field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the **Utility Agent Cluster Variable** field to **No** and specify the Utility Agent Cluster reference in the **Utility Agent Cluster** field.
Utility Credentials	Login credentials that the Agent will use to access the Universal Command server machine. Required if the Agent Credentials Required Universal Controller system property is true.
Utility Credentials Variable	Indication of whether the Utility Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Utility Credentials as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Utility Credentials reference to using a Utility Credentials variable, you must change the **Utility Credentials Variable** field to **Yes** and specify the Utility Credentials variable in the **Utility Credentials Unresolved** field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the **Utility Credentials Variable** field to **No** and specify the Utility Credentials reference in the **Utility Credentials** field.
Universal Command Details	This section contains assorted detailed information about the task instance.
UCMD Agent	Depending on the value in the UCMD Agent Option field, this field contains either: • Record name from the UCMD Agent table. • Variable that will be resolved when the task is launched. • Host name of a machine where the UCMD Agent is running.

UCMD Agent Option	Specifies how the name of the UCMD Agent is being supplied in the UCMD Agent field. Options: - UCMD Agent - UCMD Agent record is selected from the UCMD Agent table. - UCMD Agent Variable - UCMD Agent field contains a variable that will be resolved when the task is launched. - UCMD Agent Hostname - UCMD Agent field contains the host name where the UCMD Agent is running. The host name must be accessible by the Controller.
UCMD Credentials	Login credentials that Controller will use to access the remote machine where the UCMD Agent is running.
UCMD Credentials Variable	Indication of whether the UCMD Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the UCMD Credentials as a variable (checked). Use the format: ${variablename}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a UCMD Credentials reference to using a UCMD Credentials variable, you must change the **UCMD Credentials Variable** field to **Yes** and specify the UCMD Credentials variable in the **UCMD Credentials Unresolved** field. Conversely, to change from using a UCMD Credentials variable to using a UCMD Credentials reference, you must change the **UCMD Credentials Variable** field to **No** and specify the UCMD Credentials reference in the **UCMD Credentials** field.
Command or Script	Specifies whether a single command or a script is being executed. Options: - Command (default) - Script
Command	Required if Command or Script = Command; Command being executed on the remote machine. Variables supported.
Script File	Required if Command or Script = Script; Path and filename of the script file that will be executed on the remote machine.
Script Options	If Command or Script = Script; Optional. One or more command line options to pass to the script file.
UCMD Options	Any UCMD options needed by the program to execute properly. Variables supported.
Runtime Directory	Directory from which the application should be executed. Variables supported.

Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. • Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.

Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: - None Do not attach any output to the task instance record. - Standard Output Attach all standard output. - Standard Error Attach standard error output. - File Attach the file specified in the Output File field. - Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. - If a **Start Line** value is not specified, the default is 1. - If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.
Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.

Retry Exit Codes	Exit code range for which an auto-retry of tasks in FAILED status will occur. Exit code ranges must be in the same format as ranges specified in the Exit Codes field. Maximum Retries must be greater than 0. If this field is empty, any exit code potentially will cause a retry. Variables are supported. Note ⚠ If you are updating a task instance, the Retry Exit Codes field must be resolved; you cannot change the value to a variable. .
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.

Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.

Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: - – None – - Duration - Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note ⚠ If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.

Output	Displays output generated from the process, if any, based on specifications provided by the user in the Automatic Output Retrieval fields in the task Details. If automatic output retrieval was not available or was not selected, output can be obtained by clicking the Retrieve Output button.
Notes	Lists all notes associated with this record.

Output Redirection

An Agent processes Universal Command, File Transfer/UDM, and SAP task types differently than Windows and Linux/Unix task types. Universal Command, File Transfer/UDM, and SAP command lines are sent to the user process via standard input, so any redirection operators entered as task command input are not processed as expected.

If you want to direct output from a Universal Command task to your file system, the **-uagstdio** command option lets you specify the same output redirection commands that are available for Windows and Linux /Unix task types. UAG will apply the user-specified value for **-uagstdio** directly to the command image.

The I/O redirection commands that you can use with **-uagstdio** are dependent on the OS/command shell. You should be able to set up any redirection that the OS/command shell supports (just as with Windows and Unix/Linux task types).

The syntax of **-uagstdio** is similar to Universal Command, Universal Data Mover, and Universal Connector command line options; option followed by value.

For the Universal Command task type, you can specify **uagstdio** in either of the following fields:

- Command
- Universal Command Options

-uagstdio Examples

```
-uagstdio >C:\UNIVERSAL COMMANDOUT\Universal Command.out
```

If the **-uagstdio** value contains spaces, it must be enclose in double quotation marks ("):

```
-uagstdio ">C:\UNIVERSAL COMMANDOUT\Universal Command.out 2>C:\UNIVERSAL COMMANDOUT\Universal Command.err"
```

If the quoted value itself requires double quotation marks, they must be doubled (""):

```
-uagstdio ">C:\tmp\""Universal Command output""\Universal Command.out 2>C:\tmp\""Universal Command output""\Universal Command.err"
```

Running a Universal Command Task

You can run a Universal Command task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the Universal Command tasks list or Universal Command Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

SAP Task

- Overview
- Before You Begin
- Built-In Variables
- Creating an SAP Task
    - SAP Task Details
    - SAP Task Details Field Descriptions
- Viewing an SAP Task Instance
    - SAP Task Instance Details
    - SAP Task Instance Details Field Descriptions
- Output Redirection
- Universal Connector Commands
- Running an SAP Task
- Monitoring Task Execution

Overview

Note

These instructions assume the user has a working knowledge of SAP.

The SAP task allows you to send commands to an SAP system and gather status information and output back from SAP. The SAP task uses Stonebranch's proprietary Universal Connector for SAP (USAP) to communicate with SAP. Universal Connector for SAP allows Universal Controller to connect to an SAP system and manage SAP background processing tasks.

Before You Begin

To run an SAP task, you must first complete the following:

- Identify the Utility Agent that has Universal Connector for SAP installed and licensed; either a Universal Agent for Linux/Unix or a Universal Agent for Windows that will interface with the SAP system.
- Define an SAP connection in the Controller database.

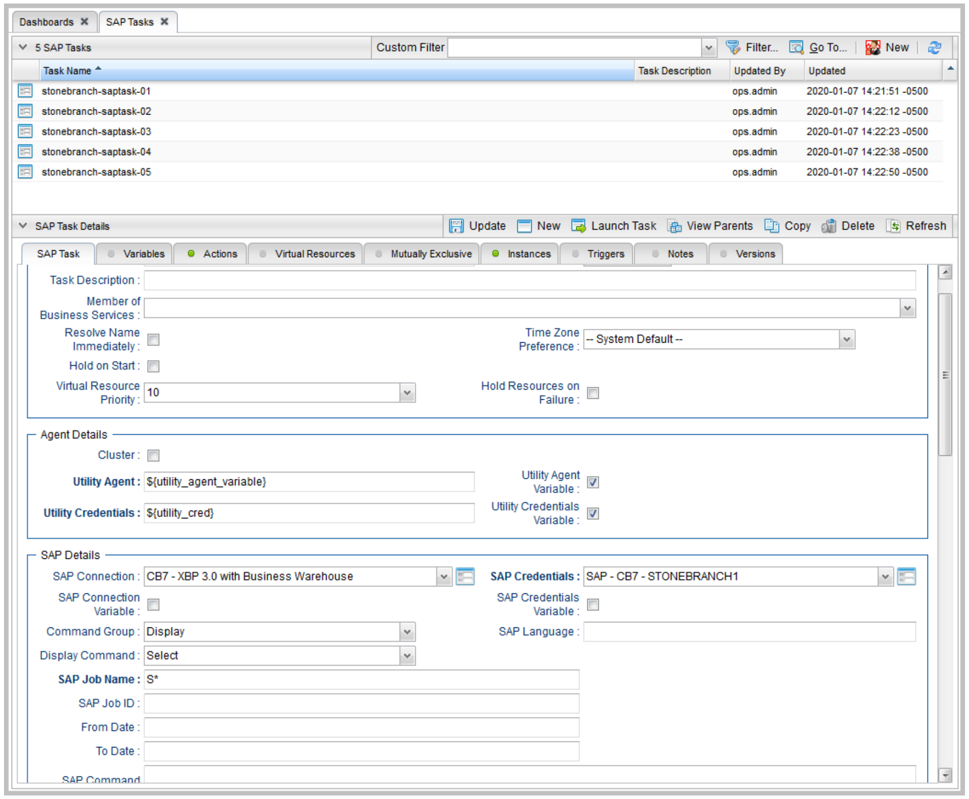
Built-In Variables

The following built-in variables can be used in an SAP task to pass data where appropriate:

- Task Instance variables
- Agent-Based Task Instance variables
- SAP Task variables

Creating an SAP Task

<table>
<tr>
<td>Step 1</td>
<td>
<p>From the Automation Center navigation pane, select Tasks > SAP Tasks. The SAP Tasks list displays a list of all currently defined SAP tasks.</p>
<p>Below the list, SAP Task Details for a new SAP task displays.</p>



<p>5 SAP Tasks</p>
<table>
<tr><th>Task Name</th><th>Task Description</th><th>Updated By</th><th>Updated</th></tr>
<tr><td>stonebranch-saptask-01</td><td></td><td>ops.admin</td><td>2020-01-07 14:21:51 -0500</td></tr>
<tr><td>stonebranch-saptask-02</td><td></td><td>ops.admin</td><td>2020-01-07 14:22:12 -0500</td></tr>
<tr><td>stonebranch-saptask-03</td><td></td><td>ops.admin</td><td>2020-01-07 14:22:23 -0500</td></tr>
<tr><td>stonebranch-saptask-04</td><td></td><td>ops.admin</td><td>2020-01-07 14:22:38 -0500</td></tr>
<tr><td>stonebranch-saptask-05</td><td></td><td>ops.admin</td><td>2020-01-07 14:22:50 -0500</td></tr>
</table>

<p>SAP Task Details</p>
<p>Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐</p>
<p>Agent Details
Cluster : ☐
Utility Agent : ${utility_agent_variable}
Utility Agent Variable : ☑
Utility Credentials : ${utility_cred}
Utility Credentials Variable : ☑</p>
<p>SAP Details
SAP Connection : CB7 - XBP 3.0 with Business Warehouse
SAP Credentials : SAP - CB7 - STONEBRANCH1
SAP Connection Variable : ☐
SAP Credentials Variable : ☐
Command Group : Display
SAP Language :
Display Command : Select
SAP Job Name : S*
SAP Job ID :
From Date :
To Date :
SAP Command</p>
</td>
</tr>
<tr>
<td>Step 2</td>
<td>
<p>Enter/select Details for a new SAP task, using the field descriptions below as a guide.</p>

Required fields display in boldface.
Default values for fields, if available, display automatically.

<p>To display more of the Details fields on the screen, you can either:</p>

Use the scroll bar.
Temporarily hide the list above the Details.
Click the New button above the list to display a pop-up version of the Details.

</td>
</tr>
<tr>
<td>Step 3</td>
<td>Click a Save button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.</td>
</tr>
</table>

Note

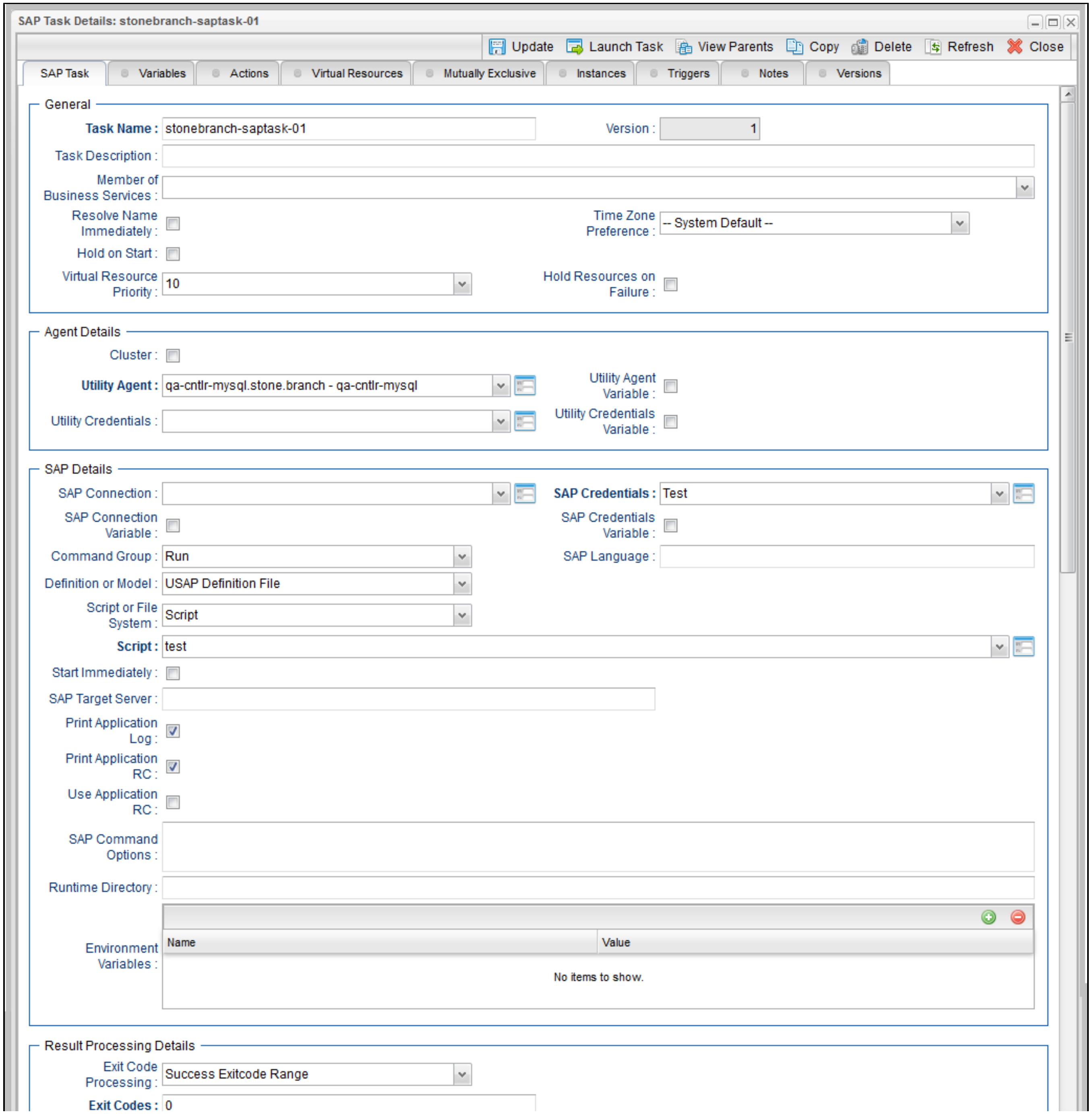
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

SAP Task Details

The following SAP Task Details is for an existing SAP task.

Depending on the values that you enter / select for these fields, and whether or not the SAP task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the SAP Task Details.


SAP Task Details: stonebranch-saptask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
SAP Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

General

Task Name : stonebranch-saptask-01
Version : 1
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Agent Details

Cluster : ☐
Utility Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Utility Agent Variable : ☐
Utility Credentials :
Utility Credentials Variable : ☐

SAP Details

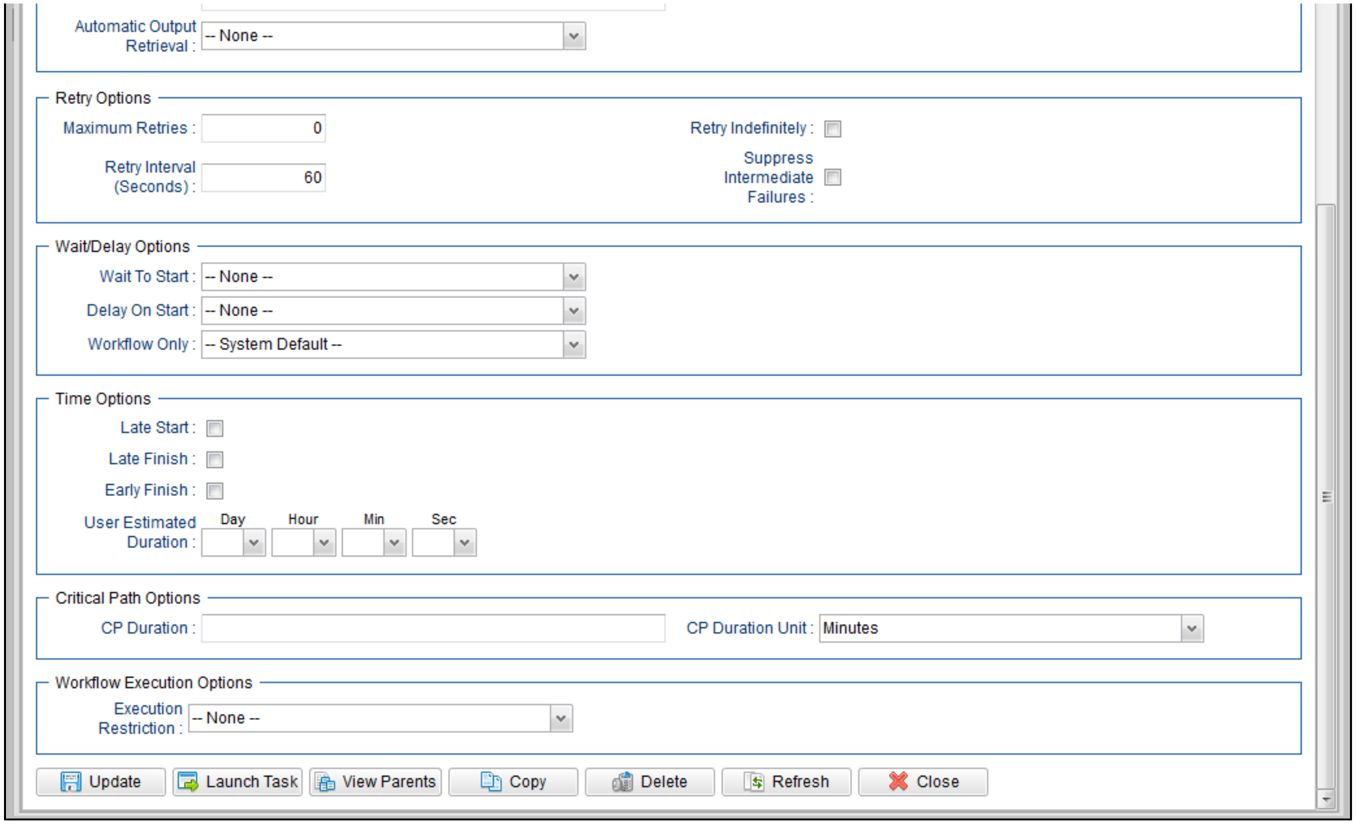
SAP Connection :
SAP Credentials : Test
SAP Connection Variable : ☐
SAP Credentials Variable : ☐
Command Group : Run
SAP Language :
Definition or Model : USAP Definition File
Script or File System : Script
Script : test
Start Immediately : ☐
SAP Target Server :
Print Application Log : ☑
Print Application RC : ☑
Use Application RC : ☐
SAP Command Options :
Runtime Directory :
Environment Variables :

Name	Value

No items to show.

Result Processing Details

Exit Code Processing : Success Exitcode Range
Exit Codes : 0



Automatic Output Retrieval : -- None --

Retry Options

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Wait/Delay Options

Wait To Start : -- None --

Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

SAP Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the SAP Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.

Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting a Utility Agent Cluster is required. If Cluster is selected, selecting a Utility Agent is not required unless Utility Agent Variable is selected.
Utility Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify a Utility Agent, you must specify a Utility Agent Cluster or Utility Cluster Broadcast.

Utility Agent Variable	If enabled, the Utility Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the **Utility Agent Variable** field to **Yes** and specify the Utility Agent variable in the **Utility Agent Unresolved** field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the **Utility Agent Variable** field to **No** and specify the Utility Agent reference in the **Utility Agent** field.
Utility Agent Cluster	If Cluster is selected; Group of Agents, one of which the Controller will choose to run this task. You can specify a Utility Agent Cluster in addition to or in place of a specific Utility Agent. If you specify a Utility Agent and a Utility Agent Cluster, the Controller first tries to run the task on the specific Utility Agent. If the Utility Agent is not available, the Controller reverts to the Utility Agent Cluster. See Agent Clusters for more information.
Utility Agent Cluster Variable	Indication of whether the Utility Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Utility Agent Cluster as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the **Utility Agent Cluster Variable** field to **Yes** and specify the Utility Agent Cluster variable in the **Utility Agent Cluster Unresolved** field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the **Utility Agent Cluster Variable** field to **No** and specify the Utility Agent Cluster reference in the **Utility Agent Cluster** field.
Utility Credentials	Login credentials that the Agent will use to access the Universal Command server machine. Required if the Agent Credentials Required Universal Controller system property is true.
Utility Credentials Variable	Indication of whether the Utility Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Utility Credentials as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Credentials reference to using a Utility Credentials variable, you must change the **Utility Credentials Variable** field to **Yes** and specify the Utility Credentials variable in the **Utility Credentials Unresolved** field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the **Utility Credentials Variable** field to **No** and specify the Utility Credentials reference in the **Utility Credentials** field.
SAP Details	This section contains assorted detailed information about the task.

SAP Connection	Name of the SAP connection. The SAP connection specifies information about the SAP server. Select an existing SAP Connection from the drop-down list or click the icon to create a new SAP Connection.
SAP Connection Variable	Indication of whether the SAP Connection field is a reference field for selecting a specific SAP Connection (unchecked) or a text field for specifying the SAP Connection as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an SAP Connection reference to using an SAP Connection variable, you must change the **SAP Connection Variable** field to **Yes** and specify the SAP Connection variable in the **SAP Connection Unresolved** field. Conversely, to change from using an SAP Connection variable to using an SAP Connection reference, you must change the **SAP Connection Variable** field to **No** and specify the SAP Connection reference in the **SAP Connection** field.
SAP Language	SAP logon language used when executing the SAP task. Valid values are: - Any valid 1-character SAP language identifier. - Any valid 2-character ISO language identifier. - (no value). SAP will use the default language set up for the user. If there is no such default, the default is EN (English).
SAP Credentials	Login credentials that the Controller will use to access the SAP system. The credentials are stored in the Universal Controller credentials table; see Credentials.
SAP Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
SAP Job Name	Job name of the SAP job. Variables supported.
SAP Job ID	Job ID of the SAP job. Variables supported. Required for the Wait, Abort, Purge Job, and Display commands. See Universal Connector Commands, below, for SAP Job ID usage with the Run, Submit, Start, and Generate Job Definition commands.
SAP Process Chain Log ID	Log ID for process chain instance to be monitored to completion.

SAP InfoPackage Request ID	Request ID of the InfoPackage that is to be monitored.
Command Group	See Universal Connector Commands, below, for a description of all supported commands and their contingent fields (options).
SAP Command Options	Use this field to specify any additional command options supported by Universal Connector (USAP).
Runtime Directory	Directory from which the application should be executed. Variables supported.
Environment Variables	Allows you to enter environment variables needed by the program to run. To add a variable, click the **+** icon and enter a **Name** and **Value**. To delete a variable, select in the list of variables and click the **-** icon. You can add a maximum of 4,000 characters for the combined Names and Values of all variables. The variable is listed in the space underneath.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. • Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.

Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: - None Do not attach any output to the task instance record. - Standard Output Attach all standard output. - Standard Error Attach standard error output. - File Attach the file specified in the Output File field. - Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. - If a **Start Line** value is not specified, the default is 1. - If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.

Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds

Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.

Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task instance.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

<table>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:
<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.
If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

Viewing an SAP Task Instance

When an SAP task is launched, the Controller creates a task instance record of that task.

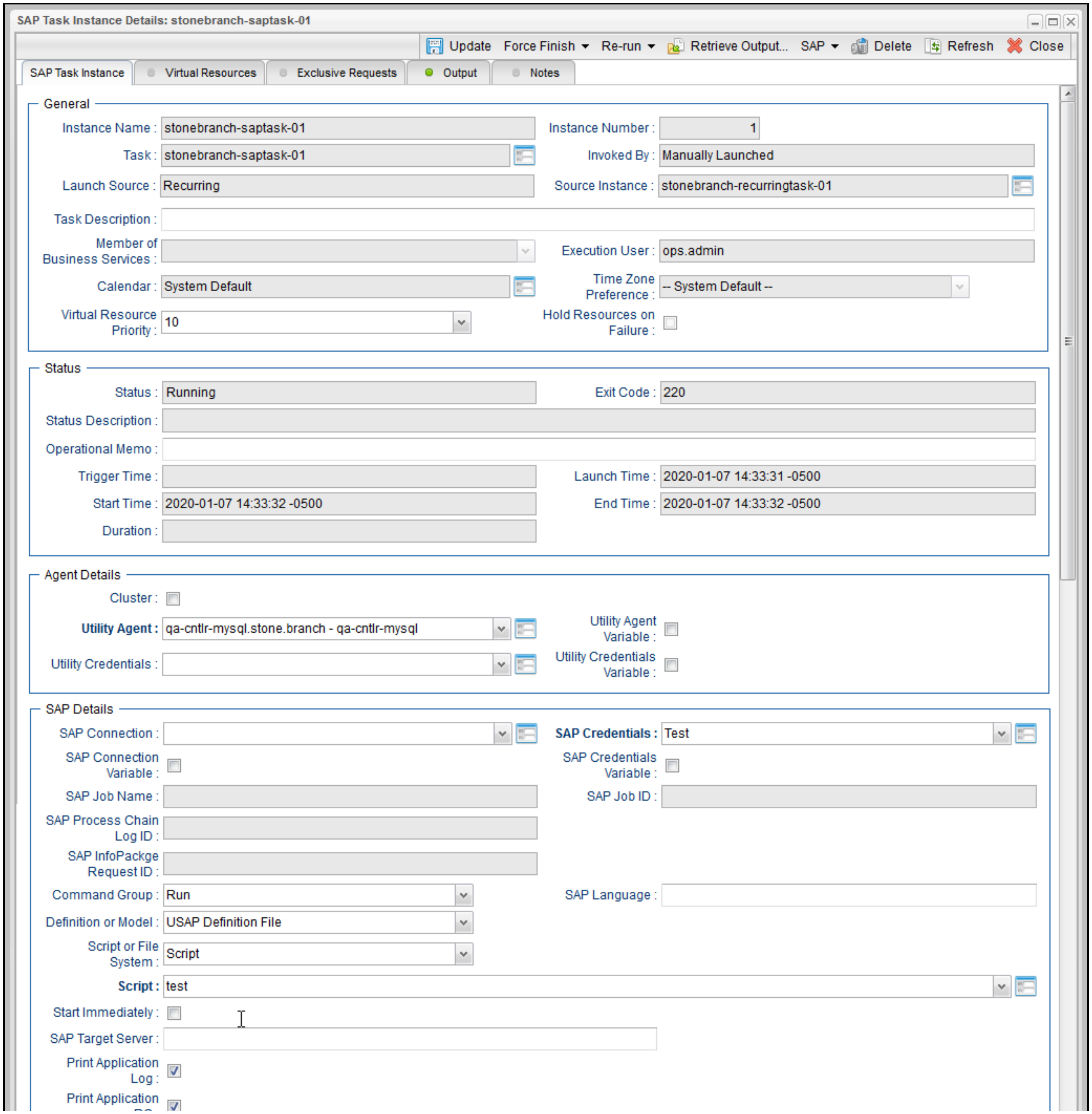
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the SAP Task Details for that task
- Activity Monitor
- Task Instances list

SAP Task Instance Details

The following SAP Task Instance Details contains information on the execution of the task shown in the SAP Task Details.


SAP Task Instance Details: stonebranch-saptask-01
Update
Force Finish
Re-run
Retrieve Output...
SAP
Delete
Refresh
Close
SAP Task Instance
Virtual Resources
Exclusive Requests
Output
Notes

General

Instance Name : stonebranch-saptask-01
Instance Number : 1
Task : stonebranch-saptask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

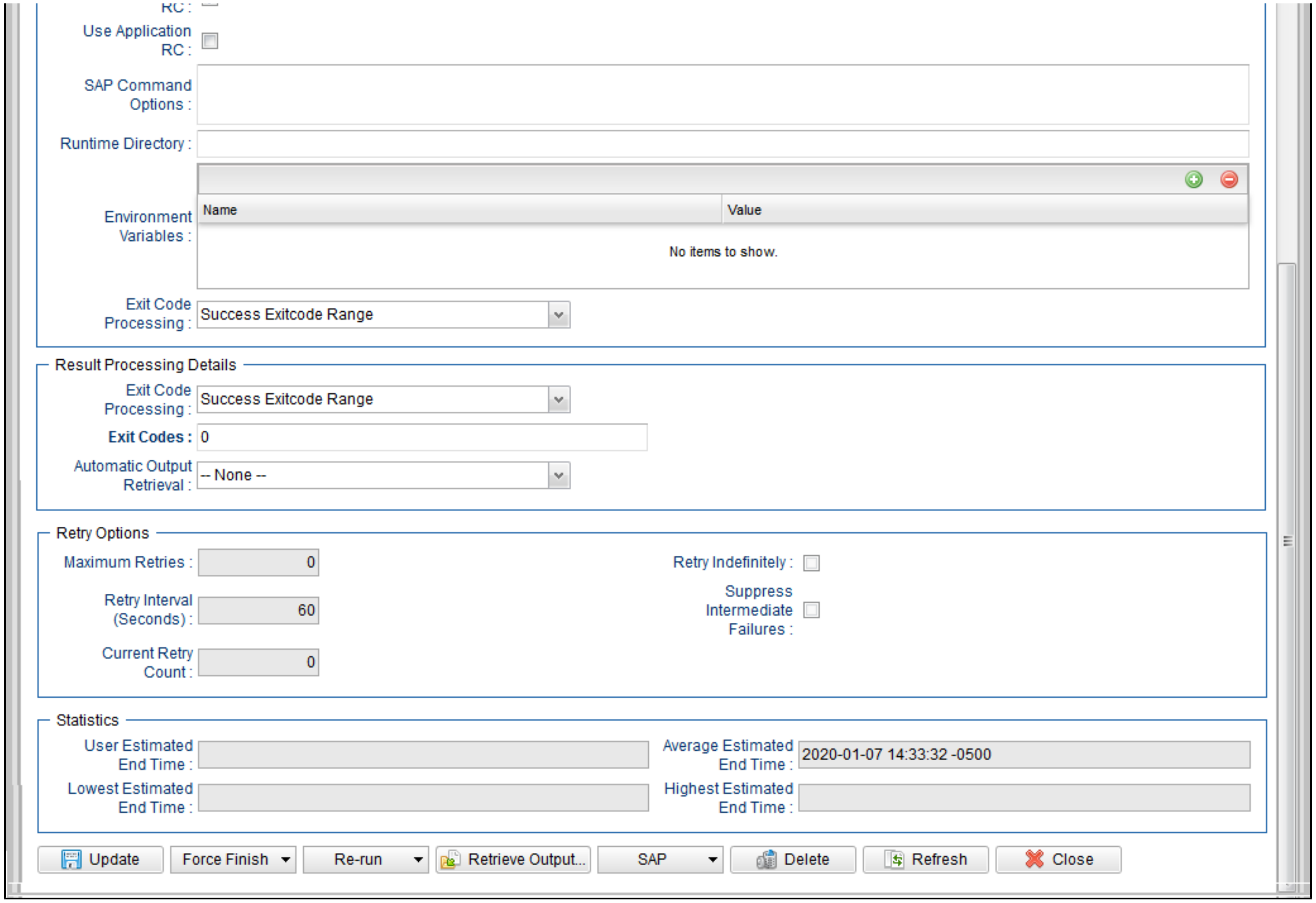
Status : Running
Exit Code : 220
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-07 14:33:31 -0500
Start Time : 2020-01-07 14:33:32 -0500
End Time : 2020-01-07 14:33:32 -0500
Duration :

Agent Details

Cluster : ☐
Utility Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Utility Agent Variable : ☐
Utility Credentials :
Utility Credentials Variable : ☐

SAP Details

SAP Connection :
SAP Credentials : Test
SAP Connection Variable : ☐
SAP Credentials Variable : ☐
SAP Job Name :
SAP Job ID :
SAP Process Chain Log ID :
SAP InfoPackge Request ID :
Command Group : Run
SAP Language :
Definition or Model : USAP Definition File
Script or File System : Script
Script : test
Start Immediately : ☐
SAP Target Server :
Print Application Log : ☑
Print Application ☑



RC : ☐

Use Application RC : ☐

SAP Command Options :

Runtime Directory :

Environment Variables :

Name	Value
No items to show.	

Exit Code Processing : Success Exitcode Range

Result Processing Details

Exit Code Processing : Success Exitcode Range

Exit Codes : 0

Automatic Output Retrieval : -- None --

Retry Options

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Current Retry Count : 0

Statistics

User Estimated End Time :

Average Estimated End Time : 2020-01-07 14:33:32 -0500

Lowest Estimated End Time :

Highest Estimated End Time :

SAP Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in SAP Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.

Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Invoked by	System-supplied; how the task instance was launched. Options: - Trigger: (Trigger Name) Instance was launched by the named trigger. - Workflow: (Workflow Name) Instance was launched by the named workflow. - Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Launch Source	System-supplied; Source from which this Recurring task was launched. Options: - Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. - Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. - Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. - Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)

Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.

Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting a Utility Agent Cluster is required. If Cluster is selected, selecting a Utility Agent is not required unless Utility Agent Variable is selected.
Utility Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify a Utility Agent, you must specify a Utility Agent Cluster or Utility Cluster Broadcast.

Utility Agent Variable	If enabled, the Utility Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the **Utility Agent Variable** field to **Yes** and specify the Utility Agent variable in the **Utility Agent Unresolved** field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the **Utility Agent Variable** field to **No** and specify the Utility Agent reference in the **Utility Agent** field.
Utility Agent Cluster	If Cluster is selected; Group of Agents, one of which the Controller will choose to run this task. You can specify a Utility Agent Cluster in addition to or in place of a specific Utility Agent. If you specify a Utility Agent and a Utility Agent Cluster, the Controller first tries to run the task on the specific Utility Agent. If the Utility Agent is not available, the Controller reverts to the Utility Agent Cluster. See Agent Clusters for more information.
Utility Agent Cluster Variable	Indication of whether the Utility Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Utility Agent Cluster as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the **Utility Agent Cluster Variable** field to **Yes** and specify the Utility Agent Cluster variable in the **Utility Agent Cluster Unresolved** field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the **Utility Agent Cluster Variable** field to **No** and specify the Utility Agent Cluster reference in the **Utility Agent Cluster** field.
Utility Credentials	Login credentials that the Agent will use to access the Universal Command server machine. Required if the Agent Credentials Required Universal Controller system property is true.
Utility Credentials Variable	Indication of whether the Utility Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Utility Credentials as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Credentials reference to using a Utility Credentials variable, you must change the **Utility Credentials Variable** field to **Yes** and specify the Utility Credentials variable in the **Utility Credentials Unresolved** field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the **Utility Credentials Variable** field to **No** and specify the Utility Credentials reference in the **Utility Credentials** field.
SAP Details	This section contains assorted detailed information about the task instance.

SAP Connection	Name of the SAP connection. The SAP connection specifies information about the SAP server. Select an existing SAP Connection from the drop-down list or click the icon to create a new SAP Connection.
SAP Connection Variable	Indication of whether the SAP Connection field is a reference field for selecting a specific SAP Connection (unchecked) or a text field for specifying the SAP Connection as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an SAP Connection reference to using an SAP Connection variable, you must change the **SAP Connection Variable** field to **Yes** and specify the SAP Connection variable in the **SAP Connection Unresolved** field. Conversely, to change from using an SAP Connection variable to using an SAP Connection reference, you must change the **SAP Connection Variable** field to **No** and specify the SAP Connection reference in the **SAP Connection** field.
SAP Language	SAP logon language used when executing the SAP task. Valid values are: • Any valid 1-character SAP language identifier. • Any valid 2-character ISO language identifier. • (no value). SAP will use the default language set up for the user. If there is no such default, the default is EN (English).
SAP Credentials	Login credentials that the Controller will use to access the SAP system. The credentials are stored in the Universal Controller credentials table; see Credentials.
SAP Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
SAP Job Name	Job name of the SAP job. Variables supported.
SAP Job ID	Job ID of the SAP job. Variables supported. Required for the Wait, Abort, Purge Job, and Display commands. See Universal Connector Commands, below, for SAP Job ID usage with the Run, Submit, Start, and Generate Job Definition commands.
SAP Process Chain Log ID	Log ID for process chain instance to be monitored to completion.

SAP InfoPackage Request ID	Request ID of the InfoPackage that is to be monitored.
Command Group	See Universal Connector Commands, below, for a description of all supported commands and their contingent fields (options).
SAP Command Options	Use this field to specify any additional command options supported by Universal Connector (USAP).
Runtime Directory	Directory from which the application should be executed. Variables supported.
Environment Variables	Allows you to enter environment variables needed by the program to run. To add a variable, click the **+** icon and enter a **Name** and **Value**. To delete a variable, select in the list of variables and click the **-** icon. You can add a maximum of 4,000 characters for the combined Names and Values of all variables. The variable is listed in the space underneath.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. • Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.

Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • File Attach the file specified in the Output File field. • Standard Output/Error Attach all standard output and standard error output. Note ⚠ Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. • If a **Start Line** value is not specified, the default is 1. • If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.

Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.

Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day Do not advance day.
	- Next Day Advance to the next day.
	- Next Business Day Advance to the next business day.
	- Sunday If today is not Sunday, advance to next Sunday.
	- Monday If today is not Monday, advance to next Monday.
	- Tuesday If today is not Tuesday, advance to next Tuesday.
	- Wednesday If today is not Wednesday, advance to next Wednesday.
	- Thursday If today is not Thursday, advance to next Thursday.
	- Friday If today is not Friday, advance to next Friday.
	- Saturday If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.

Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
SAP	Displays an Action menu of SAP commands.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.

Output	Displays output generated from the process, if any, based on specifications provided by the user in the Automatic Output Retrieval fields in the task Details. If automatic output retrieval was not available or was not selected, output can be obtained by clicking the Retrieve Output button.
Notes	Lists all notes associated with this record.

Output Redirection

An Agent processes SAP, Universal Command, and File Transfer/UDM task types differently than Windows and Linux/Unix task types. SAP, Universal Command, and File Transfer/UDM command lines are sent to the user process via standard input, so any redirection operators entered as task command input are not processed as expected.

If you want to direct output from an SAP task to your file system, the **-uagstdio** command option lets you specify the same output redirection commands that are available for Windows and Linux/Unix task types. UAG will apply the user-specified value for **-uagstdio** directly to the command image.

The I/O redirection commands that you can use with **-uagstdio** are dependent on the OS/command shell. You should be able to set up any redirection that the OS/command shell supports (just as with Windows and Unix/Linux task types).

The syntax of **-uagstdio** is similar to Universal Data Mover, Universal Command, and Universal Connector command line options; option followed by value.

For the SAP task type, you can specify **uagstdio** in the following field:

- SAP Command Options

-uagstdio Examples

```
-uagstdio >C:\SAPOUT\sap.out
```

If the **-uagstdio** value contains spaces, it must be enclose in double quotation marks ("):

```
-uagstdio ">C:\SAPOUT\sap.out 2>C:\SAPOUT\sap.err"
```

If the quoted value itself requires double quotation marks, they must be doubled (""):

```
-uagstdio ">C:\tmp\""sap output""\sap.out 2>C:\tmp\""sap output""\sap.err"
```

Universal Connector Commands

The following table identifies supported Universal Connector commands, describes the actions that each command performs, and lists each command's related options, which display in the SAP Task Details when that command is selected.

Command Name	Description	Options

Run	Performs the following actions:
	1. Defines a new SAP, job based on either a USAP Definition file or an SAP Model Job.
	2. Starts the defined job.
	3. Waits for the job to complete.
	4. Prints the job's joblog to standard error and the spoollists to standard output.
	5. Purges the job from the SAP system.
		- **Definition or Model**
		Specifies how the new SAP job will be created, based either on a USAP Definition File or an SAP Model Job.
		- **Script or File System**
		Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in Scripts.
		- **Script**
		Required if **Script or File System** = Script; Name of the script in the Controller database that will be executed by this task.
		Note
		If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.
		- **Definition File**
		If you selected USAP Definition File above, use this field to provide the path and file name of the file.
		- **SAP Job Name**
		Job name of the SAP job. Variables supported.
		- **SAP Job ID**
		Job ID of the SAP job. Variables supported.
		For Utility Agents older than Universal Agent 6.4.2.2, this is a required field.
		If you are using a newer Utility Agent, specifying a Job ID of the target SAP job will ensure that it always can be uniquely identified.
		If you do not specify a Job ID, one of the following applies:
		  - If the target SAP system has only one job with the specified name for the specified user in a status of scheduled, it is uniquely identified.
		  - If the target SAP system has multiple jobs with the specified name for the specified user:
		    - By default, we select the scheduled job if only one exists.
		    - You can optionally add an SAP Command Option -model_status <scheduled | finished | any> to control which SAP job status is used if only one job with the specified status exists.
		    - You also can optionally add an SAP Command Option -resolve_multi_model yes to select the latest SAP job if more than one exists.
		- **Target Job Name**
		If you selected SAP Model Job above, use this field to provide the name of the new SAP job being created. If you leave this field blank, the Controller uses the same name as the SAP Model Job.

		- **Start Immediately**
		Enabled or disabled. Enabling the Start Immediately flag will cause the job to fail if SAP resources are not available to start the job immediately (for example, a background work process). Otherwise, the job will wait for SAP resources to become available.
		- **SAP Target Server**
		Name of an SAP instance at which a background job should be run. The name has the following format:
		`[host name]_[SAP System name]_[SAP System number]`
		Where host name is the name of the server computer on which the instance is running, as specified in the system profile parameter SAPLOCALHOST.
		Example:
		`hs0123_C11_55`
		- **Print Application Log**
		Enabled or disabled. Specifies whether or not the job's application log, if one was generated, is returned.
		- **Print Application RC**
		Enabled or disabled. Specifies whether or not the job's application return codes, if they were set, are returned.
		- **Use Application RC**
		Specifies whether or not the SAP job's application return codes will be used to determine the return code for the Universal Controller task.

Run Process Chain	Performs the following actions: 1. Starts a process chain. 2. Waits for the process chain to complete. 3. Returns the process chain log. 4. Returns process logs. 5. Returns process spool lists.	- **Chain ID** ID of the process chain to run.
Run InfoPackage	Performs the following actions: 1. Starts an InfoPackage. 2. Wait for the InfoPackage request to complete. 3. Returns status messages for the completed Infopackage request.	- **InfoPackage** Name of the InfoPackage to run. - **InfoPackage Job Name** Name of the SAP batch job that processes the InfoPackage request.
Submit	Defines a new SAP job.	

- **Definition or Model**

  Specifies how the new SAP job will be created, based either on a USAP Definition File or an SAP Model Job.
- **Script or File System**

  Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in Scripts.
- **Script**

  Required if **Script or File System** = Script; Name of the script in the Controller database that will be executed by this task.

  Note

  If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.
- **Definition File**

  If you selected USAP Definition File above, use this field to provide the path and file name of the file.
- **SAP Job Name**

  Job name of the SAP job. Variables supported.
- **SAP Job ID**

  Job ID of the SAP job. Variables supported.

  For Utility Agents older than Universal Agent 6.4.2.2, this is a required field.

  If you are using a newer Utility Agent, specifying a Job ID of the target SAP job will ensure that it always can be uniquely identified.

  If you do not specify a Job ID, one of the following applies:

  - If the target SAP system has only one job with the specified name for the specified user in a status of scheduled, it is uniquely identified.
  - If the target SAP system has multiple jobs with the specified name for the specified user:
    - By default, we select the scheduled job if only one exists.
    - You can optionally add an SAP Command Option -model_status <scheduled | finished | any> to control which SAP job status is used if only one job with the specified status exists.
    - You also can optionally add an SAP Command Option -resolve_multi_model yes to select the latest SAP job if more than one exists.
- **Target Job Name**

  If you selected SAP Model Job above, use this field to provide the name of the new SAP job being created. If you leave this field blank, the Controller uses the same name as the SAP Model Job.
- **Start**

  Enabled or disabled. Specifies whether or not the newly-defined SAP job should be started.
- **Start Immediately**

  Enabled or disabled. Enabling the Start Immediately flag will cause the job to fail if SAP resources are not available to start the job immediately (for example, a background work process). Otherwise, the job will wait for SAP resources to become available.

- **SAP Target Server**

  Name of an SAP instance at which a background job should be run. The name has the following format:

  ```
  [host name]_[SAP System name]_[SAP System number]
  ```

  Where host name is the name of the server computer on which the instance is running, as specified in the system profile parameter SAPLOCALHOST.

  Example:

  ```
  hs0123_C11_55
  ```

- **Wait**

  Specifies whether the Controller should wait for the SAP process chain to complete processing.
- **Print Job Log**

  Enabled or disabled. Specifies whether or not the job's joblog is returned.
- **Print Spooled Output**

  Enabled or disabled. Specifies whether or not the spoollists of all job steps are returned.
- **Print Application Log**

  Enabled or disabled. Specifies whether or not the job's application log, if one was generated, is returned.
- **Print Application RC**

  Enabled or disabled. Specifies whether or not the job's application return codes, if they were set, are returned.
- **Use Application RC**

  Specifies whether or not the SAP job's application return codes will be used to determine the return code for the Universal Controller task.
- **SAP ABAP Program Name**

  Name of an ABAP program in an SAP system to which the model variant belongs.
- **SAP Variant Name**

  Pre-existing SAP variant name to use as the model variant.
- **Target Variant Name**

  One or more replacement variants for ABAP program job steps in an SAP job.

Modify	Modifies an SAP job that already exists in an SAP system. A USAP job definition file is used to specify the modifications.	• **Script Library or File System** Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in Scripts. • **Script** Required if Command or Script = Script; Name of the script in the Controller database that will be executed by this task. Note If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only. • **Definition File** If you selected USAP Definition File above, use this field to provide the path and file name of the file. • **SAP Job ID** Job ID of the SAP job. Variables supported.

Start	Starts a currently defined SAP job.	• **SAP Job Name**
		Job name of the SAP job. Variables supported.
		• **SAP Job ID**
		Job ID of the SAP job. Variables supported.
		For Utility Agents older than Universal Agent 6.4.2.2, this is a required field.
		If you are using a newer Utility Agent, specifying a Job ID of the target SAP job will ensure that it always can be uniquely identified.
		If you do not specify a Job ID, one of the following applies:
		  • If the target SAP system has only one job with the specified name for the specified user in a status of scheduled, it is uniquely identified.
		  • If the target SAP system has multiple jobs with the specified name for the specified user:
		    • By default, we select the scheduled job if only one exists.
		    • You can optionally add an SAP Command Option -model_status <scheduled | finished | any> to control which SAP job status is used if only one job with the specified status exists.
		    • You also can optionally add an SAP Command Option -resolve_multi_model yes to select the latest SAP job if more than one exists.
		• **Start Immediately**
		Enabled or disabled. Enabling the Start Immediately flag will cause the job to fail if SAP resources are not available to start the job immediately (for example, a background work process). Otherwise, the job will wait for SAP resources to become available.

		- **SAP Target Server**
		Name of an SAP instance at which a background job should be run. The name has the following format:
		`[host name]_[SAP System name]_[SAP System number]`
		Where host name is the name of the server computer on which the instance is running, as specified in the system profile parameter SAPLOCALHOST.
		Example:
		`hs0123_C11_55`
		- **Wait**
		Specifies whether the Controller should wait for the SAP process chain to complete processing.
		- **Print Job Log**
		Enabled or disabled. Specifies whether or not the job's joblog is returned.
		- **Print Spooled Output**
		Enabled or disabled. Specifies whether or not the spoollists of all job steps are returned.
		- **Print Application Log**
		Enabled or disabled. Specifies whether or not the job's application log, if one was generated, is returned.
		- **Print Application RC**
		Enabled or disabled. Specifies whether or not the job's application return codes, if they were set, are returned.
		- **Use Application RC**
		Specifies whether or not the SAP job's application return codes will be used to determine the return code for the Universal Controller task.

Start Process Chain	Starts the specified process chain on the SAP system.	• **Chain ID** ID of process chain to start. • **Restart** Specification to restart failed and cancelled processes (R or X) in the specified process chain instance. • **Log ID** Log ID for process chain instance to be restarted. • **Wait** Specifies whether the Controller should wait for the SAP process chain to complete processing. • **Print Job Log** Enabled or disabled. Specifies whether or not the job's joblog is returned. • **Print Spooled Output** Enabled or disabled. Specifies whether or not the spoollists of all job steps are returned. • **Print Application Log** Enabled or disabled. Specifies whether or not the job's application log, if one was generated, is returned. • **Print Application RC** Enabled or disabled. Specifies whether or not the job's application return codes, if they were set, are returned. • **Use Application RC** Specifies whether or not the SAP job's application return codes will be used to determine the return code for the Universal Controller task.
Start InfoPackage	Starts the specified InfoPackage on the SAP system.	• **InfoPackage** Name of the InfoPackage to start. • **InfoPackage Job Name** Name of the SAP batch job that processes the InfoPackage request. • **Wait** Specifies whether the Controller should wait for the SAP InfoPackage to complete processing.

Wait	Reconnects to a started job and monitors it through completion.	- **SAP Job Name** Job name of the SAP job. Variables supported. - **SAP Job ID** Job ID of the SAP job. Variables supported. - **Print Job Log** Enabled or disabled. Specifies whether or not the job's joblog is returned. - **Print Spooled Output** Enabled or disabled. Specifies whether or not the spoollists of all job steps are returned. - **Print Application Log** Enabled or disabled. Specifies whether or not the job's application log, if one was generated, is returned. - **Print Application RC** Enabled or disabled. Specifies whether or not the job's application return codes, if they were set, are returned. - **Use Application RC** Specifies whether or not the SAP job's application return codes will be used to determine the return code for the Universal Controller task.
Wait Process Chain	Waits for a Process Chain to complete.	- **Chain ID** ID of process chain to be monitored to completion. - **Log ID** Log ID for process chain instance to be monitored to completion.
Wait InfoPackage	Waits for an InfoPackage to complete.	- **Request ID** Request ID of the InfoPackage that is to be monitored.
Abort	Cancels a running SAP job.	- **SAP Job Name** Job name of the SAP job. Variables supported. - **SAP Job ID** Job ID of the SAP job. Variables supported.
Interrupt Process Chain	Removes the specified process chain from the schedule.	- **Chain ID** ID of process chain that is to be interrupted.

Purge Job	Deletes a defined SAP job, its joblog, and all of its spoollists. This command is not available on SAP 3.1 and SAP 4.0.	- **SAP Job Name** Job name of the SAP job. Variables supported. - **SAP Job ID** Job ID of the SAP job. Variables supported.
Purge Variant	Deletes a variant from an SAP system.	- **SAP ABAP Program Name** Name of the ABAP program for which the variant will be deleted. - **SAP Variant Name** Name of the variant to be deleted.
Raise Event	Raises the specified SAP background processing event.	- **SAP Event** Name of the event. - **SAP Event Parameter** Optional parameter value for the event.
Display	Displays the data specified in the Display Command field. The data is written to standard output.	- **Display Command** One of the following:

Job Log	Displays the job log for a specified SAP job.
Spool List	Displays the spoollist for a job step.
Status	Displays the current status for an SAP job.
Variants	Displays the variants available for the specified ABAP program.
Variant	Displays the contents of a specified variant. **Note:** Requires XBP interface 2.0 or greater.
Job Definition	Displays the definition of the specified SAP job.
Select	Displays a variety of attributes for a list of SAP jobs that match the specified criteria.
System Log	Displays a portion of an SAP syslog that meets the specified date/time constraints.
Intercept Table	Displays the contents of the job intercept criteria table for the connected SAP system.
Intercepted Jobs	Displays intercepted jobs for the connected SAP system.
Reports	Displays a list of ABAP reports that match the specified criteria.
Commands	Displays a list of SAP external commands that match the specified criteria.
Output Devices	Displays a list of SAP output devices that match the specified criteria.
Print Formats	Displays a list of print formats that are available for the specified printer.
Selection Screen	Displays information about the selection fields of an ABAP program.
Event History	Displays a list of events that were logged in an SAP system's event history. The retrieved events can optionally be set to "Confirmed."
Criteria Manager Profiles	Displays a list of Criteria Manager profiles.
Criteria Manager Criteria	Displays the criteria hierarchy of a particular profile in XML format.
Process Chains	Displays a list of process chains from the SAP system that meet the specified criteria.
Process Chain	Displays the list of processes contained within the specified process chain.
Process Chain Log	Displays the SAP log associated with the process chain.
Process Chain Start Condition	Displays the SAP start condition for specified process chain.
Process Chain Status	Displays the current status of the process chain.
InfoPackages	Displays a list of InfoPackages on the SAP system that meet the specified criteria.
InfoPackage Status	Displays the current status for the InfoPackage instance identified by the request ID.

Generate Variant Definition	Generates a USAP variant definition file based on a model SAP variant. The generated definition file is written to standard output. Requires XBP interface 2.0 or greater.	- **SAP ABAP Program Name** Name of an ABAP program in an SAP system to which the model variant belongs. - **SAP Variant Name** Pre-existing SAP variant name to use as the model variant.

Generate Job Definition	Generates a USAP job definition file based on a model SAP job. The generated definition file is written to standard output.	- **SAP Job Name**
		Job name of the SAP job. Variables supported.
		- **SAP Job ID**
		Job ID of the SAP job. Variables supported.
		For Utility Agents older than Universal Agent 6.4.2.2, this is a required field.
		If you are using a newer Utility Agent, specifying a Job ID of the target SAP job will ensure that it always can be uniquely identified.
		If you do not specify a Job ID, one of the following applies:
		- If the target SAP system has only one job with the specified name for the specified user in a status of scheduled, it is uniquely identified.
		- If the target SAP system has multiple jobs with the specified name for the specified user:
		  - By default, we select the scheduled job if only one exists.
		  - You can optionally add an SAP Command Option -model_status <scheduled | finished | any> to control which SAP job status is used if only one job with the specified status exists.
		  - You also can optionally add an SAP Command Option -resolve_multi_model yes to select the latest SAP job if more than one exists.

Create CM Profile	Creates a new Criteria Manager profile.	- **Script or File System** Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in Scripts. - **Script** Required if **Script or File System** = Script; Name of the script in the Controller database that will be executed by this task. Note ⚠ If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only. - **SAP Criteria Manager XML File** Name of the file that contains the Criteria Manager information. - **Event Select State** Event status of the events which should be read. - **SAP Event** Name of the event. - **SAP Event Parameter** Optional parameter value for the event. - **Confirm Returned Events** Specification for whether or not the status of returned events should be changed in the SAP system.

Set CM Criteria	Sets the criteria for a profile.	- **Script or File System**
		Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in Scripts.
		- **Script**
		Required if **Script or File System** = Script; Name of the script in the Controller database that will be executed by this task.
		Note
		⚠
		If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.
		- **SAP Criteria Manager XML File**
		Name of the file that contains the Criteria Manager information.
		- **SAP Criteria Manager Profile ID**
		ID of the profile.
		- **SAP Criteria Manager Profile Type**
		Type of profile. For the default criteria types provided by SAP, the values are:
		  - **EVTHIS** - Identifies a criteria type for event history.
		  - **EVHIRO** - Identifies a criteria type for the reorganization of raised events.
		  - **INTERC** - Identifies a criteria type for job interception.
		- **Event Select State**
		Event status of the events which should be read.
		- **SAP Event**
		Name of the event.
		- **SAP Event Parameter**
		Optional parameter value for the event.
		- **Confirm Returned Events**
		Specification for whether or not the status of returned events should be changed in the SAP system.

Activate CM Profile	Activates a criteria profile of the specified type.	- **SAP Criteria Manager Profile ID**
		ID of the profile.
		- **SAP Criteria Manager Profile Type**
		Type of profile. For the default criteria types provided by SAP, the values are:
		  - **EVTHIS** - Identifies a criteria type for event history.
		  - **EVHIRO** - Identifies a criteria type for the reorganization of raised events.
		  - **INTERC** - Identifies a criteria type for job interception.
		- **Event Select State**
		Event status of the events which should be read.
		- **SAP Event**
		Name of the event.
		- **SAP Event Parameter**
		Optional parameter value for the event.
		- **Confirm Returned Events**
		Specification for whether or not the status of returned events should be changed in the SAP system.

Deactivate CM Profile	Deactivates a criteria profile of the specified type.	- **SAP Criteria Manager Profile Type**
		Type of profile. For the default criteria types provided by SAP, the values are:
		  - **EVTHIS** - Identifies a criteria type for event history.
		  - **EVHIRO** - Identifies a criteria type for the reorganization of raised events.
		  - **INTERC** - Identifies a criteria type for job interception.
		- **Event Select State**
		Event status of the events which should be read.
		- **SAP Event**
		Name of the event.
		- **SAP Event Parameter**
		Optional parameter value for the event.
		- **Confirm Returned Events**
		Specification for whether or not the status of returned events should be changed in the SAP system.

Delete CM Profile	Deletes a criteria profile from an SAP system.	• **SAP Criteria Manager Profile ID**
		ID of the profile.
		• **SAP Criteria Manager Profile Type**
		Type of profile. For the default criteria types provided by SAP, the values are:
		  • **EVTHIS** - Identifies a criteria type for event history.
		  • **EVHIRO** - Identifies a criteria type for the reorganization of raised events.
		  • **INTERC** - Identifies a criteria type for job interception.
		• **Event Select State**
		Event status of the events which should be read.
		• **SAP Event**
		Name of the event.
		• **SAP Event Parameter**
		Optional parameter value for the event.
		• **Confirm Returned Events**
		Specification for whether or not the status of returned events should be changed in the SAP system.

Running an SAP Task

You can run an SAP task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the SAP tasks list or SAP Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

PeopleSoft Task

- Overview
- Before You Begin
- Built-In Variables
- Creating a PeopleSoft Task
  - PeopleSoft Task Details
  - PeopleSoft Task Details Field Descriptions
  - Options Fields
- Viewing a PeopleSoft Task Instance
  - PeopleSoft Task Instance Details
  - PeopleSoft Task Instance Details Field Descriptions
- Adding RunTime Parameters
  - Adding a Parameter
  - Deleting a RunTime Parameter
- Running a PeopleSoft Task
- Monitoring Task Execution

Overview

Note

These instructions assume the user has a working knowledge of PeopleSoft.

The PeopleSoft task allows you to send commands to a PeopleSoft system and gather status information and output back from PeopleSoft. The PeopleSoft task uses Stonebranch's proprietary Universal Connector for PeopleSoft (UPPS) to communicate with PeopleSoft . Universal Connector for PeopleSoft allows Universal Controller to connect to a PeopleSoft system and manage PeopleSoft background processing tasks.

Before You Begin

To run a PeopleSoft task, you must first complete the following:

- Identify a Universal Agent for Linux/Unix that will interface with the PeopleSoft system.
- Define an PeopleSoft connection in the Controller database.

Built-In Variables

The following built-in variables can be used in a PeopleSoft task to pass data where appropriate:

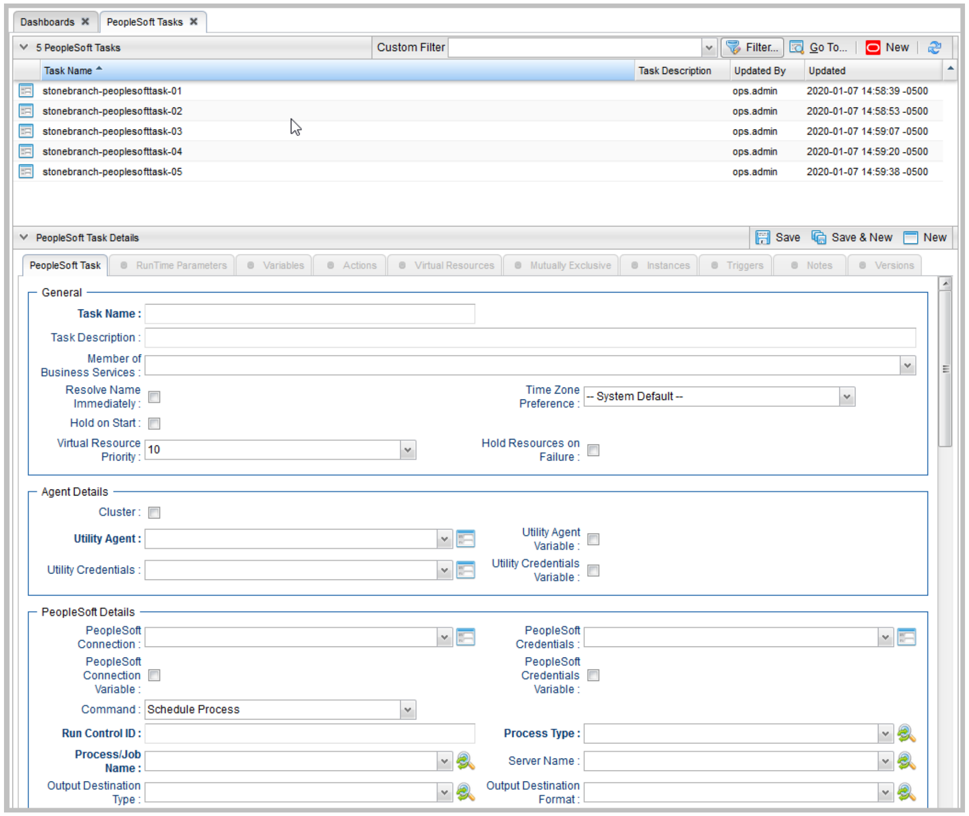
- Task Instance variables
- Agent-Based Task Instance variables
- PeopleSoft Task variables

Creating a PeopleSoft Task

Step 1

From the Automation Center navigation pane, select **Tasks > PeopleSoft Tasks**. The PeopleSoft Tasks list displays a list of all currently defined PeopleSoft tasks.

Below the list, PeopleSoft Task Details for a new PeopleSoft task displays.


Dashboards
PeopleSoft Tasks
5 PeopleSoft Tasks
Custom Filter
Filter...
Go To...
New
PeopleSoft Task Details
Save
Save & New
New
PeopleSoft Task
RunTime Parameters
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately :
Hold on Start :
Hold Resources on Failure :
Agent Details
Cluster :
Utility Agent :
Utility Agent Variable :
Utility Credentials :
Utility Credentials Variable :
PeopleSoft Details
PeopleSoft Connection :
PeopleSoft Credentials :
PeopleSoft Connection Variable :
PeopleSoft Credentials Variable :
Run Control ID :
Process Type :
Process/Job Name :
Server Name :
Output Destination Type :
Output Destination Format :

Task Name	Task Description	Updated By	Updated
stonebranch-peoplesofttask-01		ops.admin	2020-01-07 14:58:39 -0500
stonebranch-peoplesofttask-02		ops.admin	2020-01-07 14:58:53 -0500
stonebranch-peoplesofttask-03		ops.admin	2020-01-07 14:59:07 -0500
stonebranch-peoplesofttask-04		ops.admin	2020-01-07 14:59:20 -0500
stonebranch-peoplesofttask-05		ops.admin	2020-01-07 14:59:38 -0500

Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Command : Schedule Process

Step 2

Enter/select Details for a new PeopleSoft task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

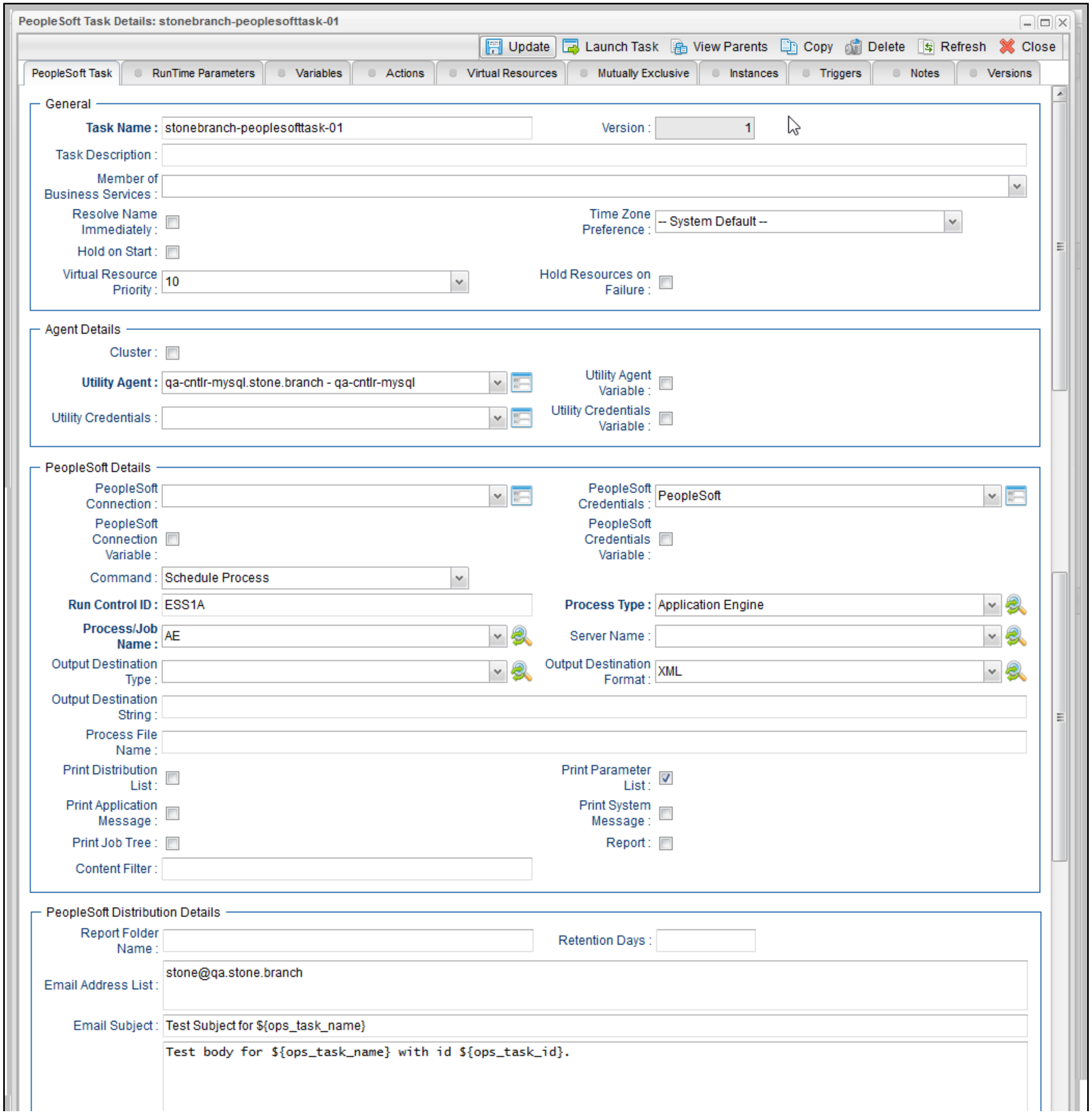
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

PeopleSoft Task Details

The following PeopleSoft Task Details is for an existing PeopleSoft task.

Depending on the values that you enter / select for these fields, and whether or not the PeopleSoft task has ever been launched, more (or less) fields may display. See thefield descriptions, below, for a description of all fields that may display in the PeopleSoft Task Details.


PeopleSoft Task Details: stonebranch-peoplesofttask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
PeopleSoft Task
RunTime Parameters
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

General

Task Name : stonebranch-peoplesofttask-01
Version : 1
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Agent Details

Cluster : ☐
Utility Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Utility Agent Variable : ☐
Utility Credentials :
Utility Credentials Variable : ☐

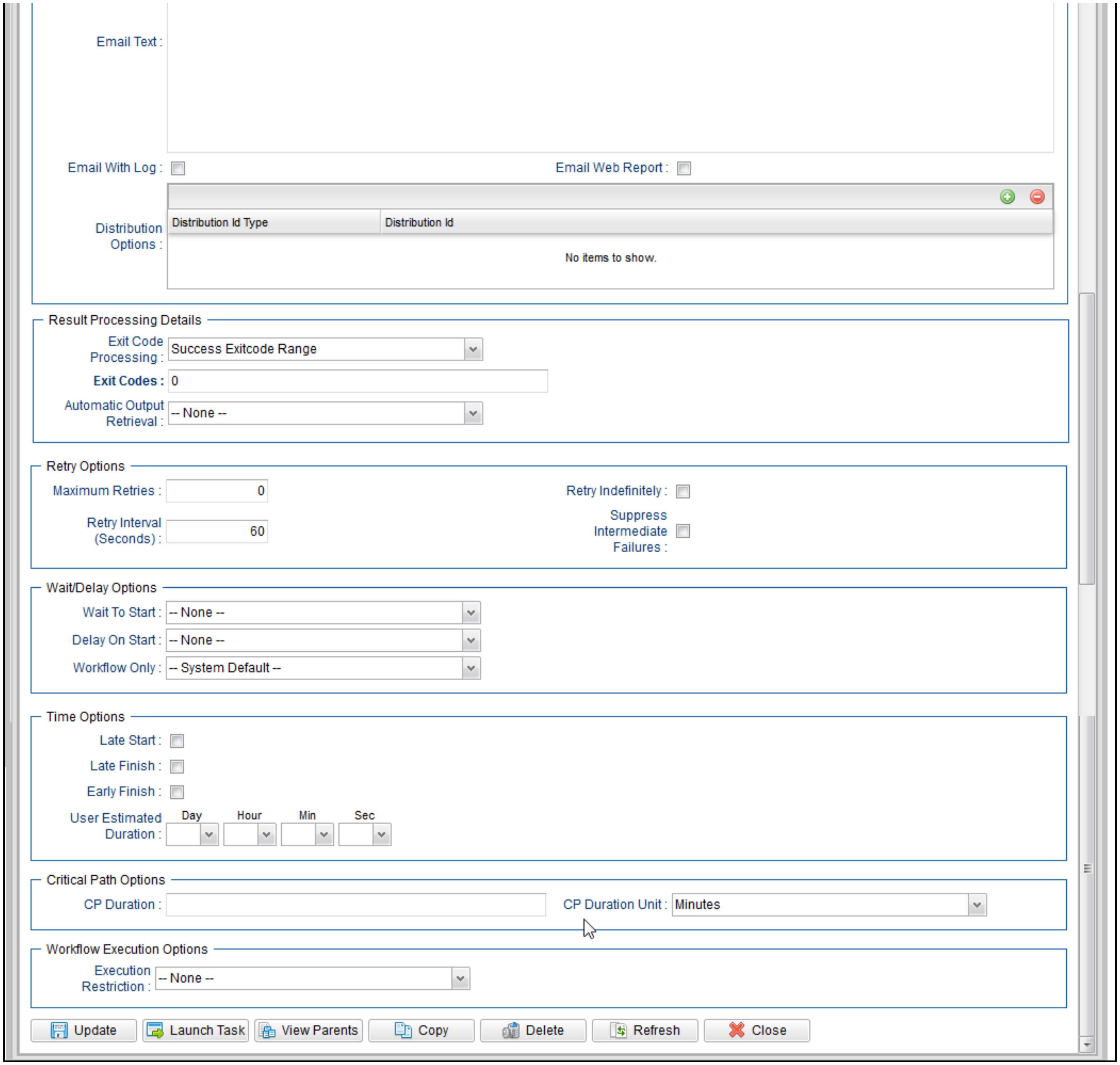
PeopleSoft Details

PeopleSoft Connection :
PeopleSoft Credentials : PeopleSoft
PeopleSoft Connection Variable : ☐
PeopleSoft Credentials Variable : ☐
Command : Schedule Process
Run Control ID : ESS1A
Process Type : Application Engine
Process/Job Name : AE
Server Name :
Output Destination Type :
Output Destination Format : XML
Output Destination String :
Process File Name :
Print Distribution List : ☐
Print Parameter List : ☑
Print Application Message : ☐
Print System Message : ☐
Print Job Tree : ☐
Report : ☐
Content Filter :

PeopleSoft Distribution Details

Report Folder Name :
Retention Days :
Email Address List : stone@qa.stone.branch
Email Subject : Test Subject for ${ops_task_name}

```
Test body for ${ops_task_name} with id ${ops_task_id}.
```



Email Text :

Email With Log : ☐

Email Web Report : ☐

Distribution Options :

Distribution Id Type	Distribution Id
No items to show.	

Result Processing Details

Exit Code Processing : Success Exitcode Range

Exit Codes : 0

Automatic Output Retrieval : -- None --

Retry Options

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Wait/Delay Options

Wait To Start : -- None --

Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

PeopleSoft Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the PeopleSoft Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.

Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting a Utility Agent Cluster is required. If Cluster is selected, selecting a Utility Agent is not required unless Utility Agent Variable is selected.
Utility Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify a Utility Agent, you must specify a Utility Agent Cluster or Utility Cluster Broadcast.
Utility Agent Variable	If enabled, the Utility Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the **Utility Agent Variable** field to **Yes** and specify the Utility Agent variable in the **Utility Agent Unresolved** field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the **Utility Agent Variable** field to **No** and specify the Utility Agent reference in the **Utility Agent** field.
Utility Agent Cluster	If Cluster is selected; Group of Agents, one of which the Controller will choose to run this task. You can specify a Utility Agent Cluster in addition to or in place of a specific Utility Agent. If you specify a Utility Agent and a Utility Agent Cluster, the Controller first tries to run the task on the specific Utility Agent. If the Utility Agent is not available, the Controller reverts to the Utility Agent Cluster. See Agent Clusters for more information.
Utility Agent Cluster Variable	Indication of whether the Utility Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Utility Agent Cluster as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the **Utility Agent Cluster Variable** field to **Yes** and specify the Utility Agent Cluster variable in the **Utility Agent Cluster Unresolved** field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the **Utility Agent Cluster Variable** field to **No** and specify the Utility Agent Cluster reference in the **Utility Agent Cluster** field.
Utility Credentials	Login credentials that the Agent will use to access the Universal Command server machine. Required if the Agent Credentials Required Universal Controller system property is true.

Utility Credentials Variable	Indication of whether the Utility Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Utility Credentials as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Credentials reference to using a Utility Credentials variable, you must change the **Utility Credentials Variable** field to **Yes** and specify the Utility Credentials variable in the **Utility Credentials Unresolved** field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the **Utility Credentials Variable** field to **No** and specify the Utility Credentials reference in the **Utility Credentials** field.
PeopleSoft Details	This section contains assorted detailed information about the task.
PeopleSoft Connection	Name of the PeopleSoft connection. The PeopleSoft connection specifies information about the PeopleSoft server. Select an existing PeopleSoft Connection from the drop-down list or click the icon to create a new PeopleSoft Connection.
PeopleSoft Connection Variable	Indication of whether the PeopleSoft Connection field is a reference field for selecting a specific PeopleSoft Connection (unchecked) or a text field for specifying the PeopleSoft Connection as a variable (checked). Use the format: ${variable name} . The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a PeopleSoft Connection reference to using a PeopleSoft Connection variable, you must change the **PeopleSoft Connection Variable** field to **Yes** and specify the PeopleSoft Connection variable in the **PeopleSoft Connection Unresolved** field. Conversely, to change from using a PeopleSoft Connection variable to using a PeopleSoft Connection reference, you must change the **PeopleSoft Connection Variable** field to **No** and specify the PeopleSoft Connection reference in the **PeopleSoft Connection** field.
PeopleSoft Credentials	Login credentials that the Controller will use to access the PeopleSoft system. The credentials are stored in the Universal Controller credentials table; see Credentials. Note Either the PeopleSoft Connection or the PeopleSost task using that connection must specify PeopleSoft Credentials. If a PeopleSoft task using the PeopleSoft Connection specifies PeopleSoft Credentials, those PeopleSoft task credentials override the PeopleSoft Connection credentials.
PeopleSoft Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.

Command	PeopleSoft command to execute. Options: - Schedule Process Schedule a process. - Schedule Job Schedule a job. - Run Jobset Run a job. Default is Schedule Process.
Run Control ID	If Command = Schedule Process or Schedule Job; Run control ID to be used for the process submission.
Process Type	If Command = Schedule Process or Schedule Job; Specific type of PeopleSoft process. (If Command = Schedule Job, Process Type defaults to PSJob and is read-only.)
Process/Job Name	If Command = Schedule Process or Schedule Job; Name of the PeopleSoft process/job.
Server Name	If Command = Schedule Process or Schedule Job; Specific server name. If Command = Schedule Process or Schedule Job; Specific server name.
Output Destination Type	If Command = Schedule Process or Schedule Job; Type of output for the submitted process.
Output Destination Format	If Command = Schedule Process or Schedule Job; Override of the default output format for the submitted process.
Output Destination String	If Command = Schedule Process or Schedule Job; File path or printer destination for the output.
Process File Name	If Command = Schedule Process or Schedule Job; Dependent file name.
Main Schedule Name	If Command = Run Jobset; Name of the jobset schedule.
Main Job Name	If Command = Run Jobset; Name of the job within the jobset schedule.
Print Distribution List	Specification for whether or not the report-recipient distribution list is included in the Job Report.

Print Parameter List	Specification for whether or not the parameter list job items are included in the Job Report.
Print Application Message	Specification for whether or not the application messages for the monitored processes are included in the Job Report.
Print System Message	Specification for whether or not the application messages for the monitored processes are included in the Job Report.
Print Job Tree	Specification for whether or not the job tree is included in the Job Report.
Report	Specification for whether or not reports associated with a process are returned.
Content Filter	Comma-delimited list of report file suffixes that will not be returned. For example: pdf,xls
PeopleSoft Distribution Details	If Command = Schedule Process or Schedule Job; This section contains assorted distribution details about the task.
Report Folder Name	If Command = Schedule Process or Schedule Job; Folder in which the report will be viewed in Report Manager.
Retention Days	If Command = Schedule Process or Schedule Job; Number of days that reports generated by the submitted process should be retained by the system.
Email Address List	If Command = Schedule Process; List of email addresses, separated by semicolons.
Email Subject	If Command = Schedule Process; Subject line of the email. If not specified, the default subject line is used.
Email Text	If Command = Schedule Process; Body of the email. If not specified, the default body message is used.
Email With Log	If Command = Schedule Process; Indication (checked or unchecked) for whether or not to attach log files resulting from the Structured Query Report. Only applicable if Process Type = SQR Report.
Email Web Report	If Command = Schedule Process; Indication (checked or unchecked) for whether or not to include a link to the completed report output. Only applicable if Output Destination Type = WEB.

Distribution Options	If Command = Schedule Process; Recipients of the process output To add an option, click the **+** icon and enter: - **Distribution Id Type**: User or Role - **Distribution Id** To delete an option, select in the list of variables and click the **-** icon.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: - Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. - Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. - Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. - Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. - Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: - Standard Output (STDOUT) - Standard Error (STDERR) - File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.

Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: - None Do not attach any output to the task instance record. - Standard Output Attach all standard output. - Standard Error Attach standard error output. - File Attach the file specified in the Output File field. - Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. - If a **Start Line** value is not specified, the default is 1. - If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.
Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.

Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note ⚠ You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task instance.
RunTime Parameters	See Adding RunTime Parameters, below.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

Actions	Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task. Events are: • Task instance status • Exit codes • Late start • Late finish • Early finish Actions are: **Abort Action**: Abort the task if certain events occur. For details, see Abort Actions. **Email Notification**: Send an email if certain events occur. For details, see Email Notification Actions. **Set Variable**: Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow . **SNMP Notification**: Send an email if certain events occur. For details, see SNMP Notification Actions. **System Operation**: Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.
Instances	Lists all instances of the task.
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.
Notes	Lists all notes associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning.

Options Fields

Five PeopleSoft Task fields allow you to populate their drop-down lists with options retrieved from the PeopleSoft system:

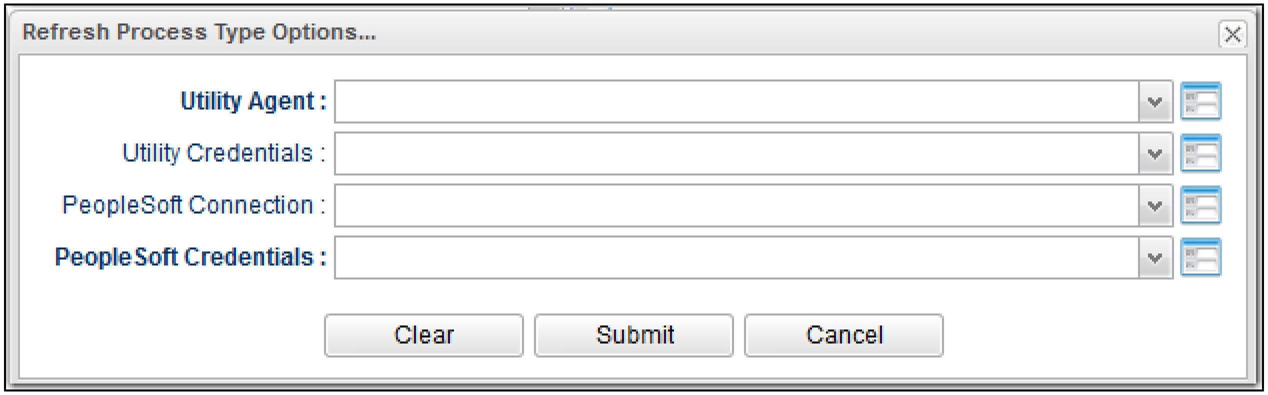
- Process Type
- Process/Job Name
- Server Name
- Output Destination Type
- Output Destination Format

To select the options for a field, click the refresh picker icon next to its drop-down list to display a Refresh Options... dialog. There is a different Refresh Options... dialog for each options field (see below).

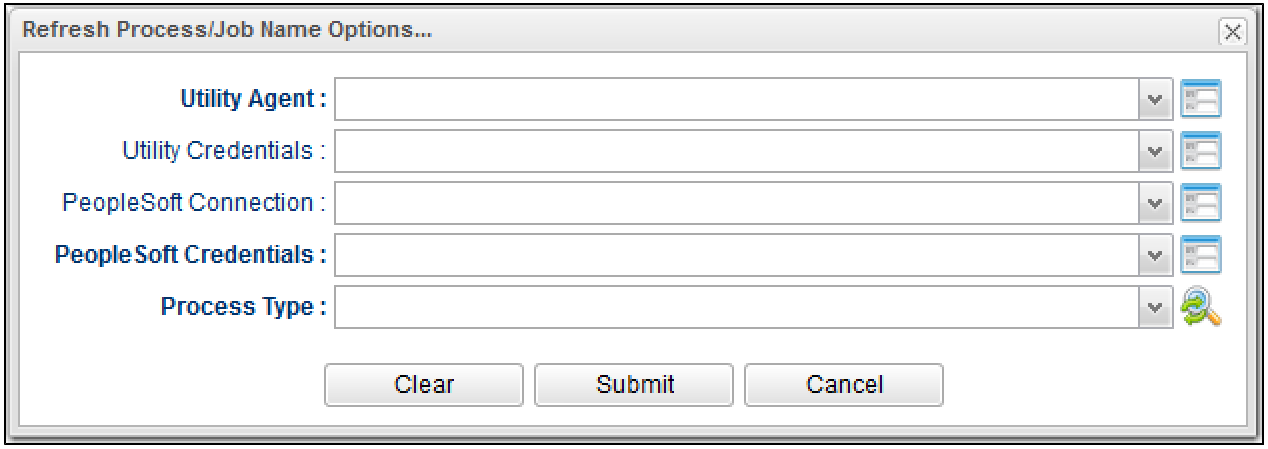
Most of the fields on a Refresh Options... dialog are fields from the PeopleSoft Task Details, and the values for those fields in the dialog are, by default, the same as the values for the fields in the Details. You can keep the current values or change them from their drop-down lists.

When you click the Submit button on the Refresh Options... dialog for an options field, the drop-down list for that field is populated with values that are determined by the values that you submitted on the Refresh Options... dialog.

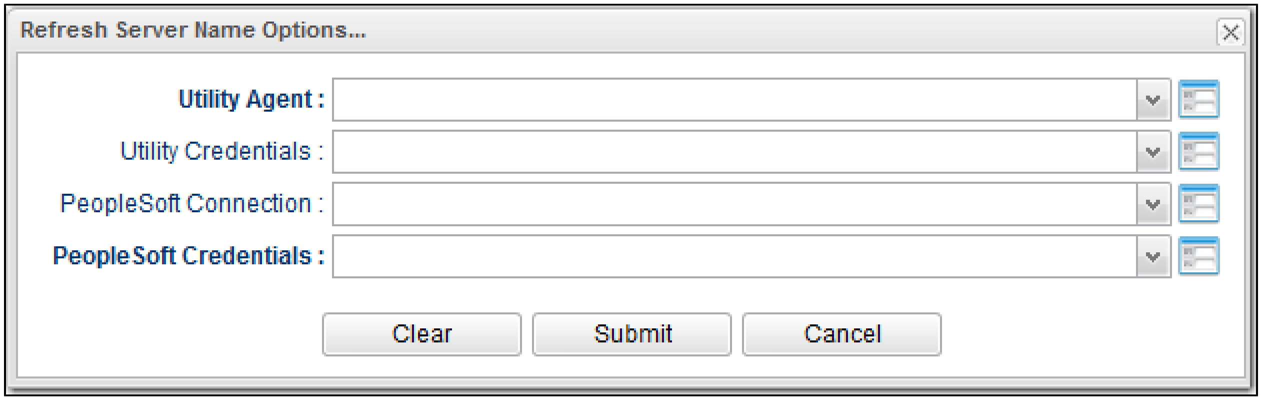
Process Type


Refresh Process Type Options...
Utility Agent :
Utility Credentials :
PeopleSoft Connection :
PeopleSoft Credentials :
Clear
Submit
Cancel

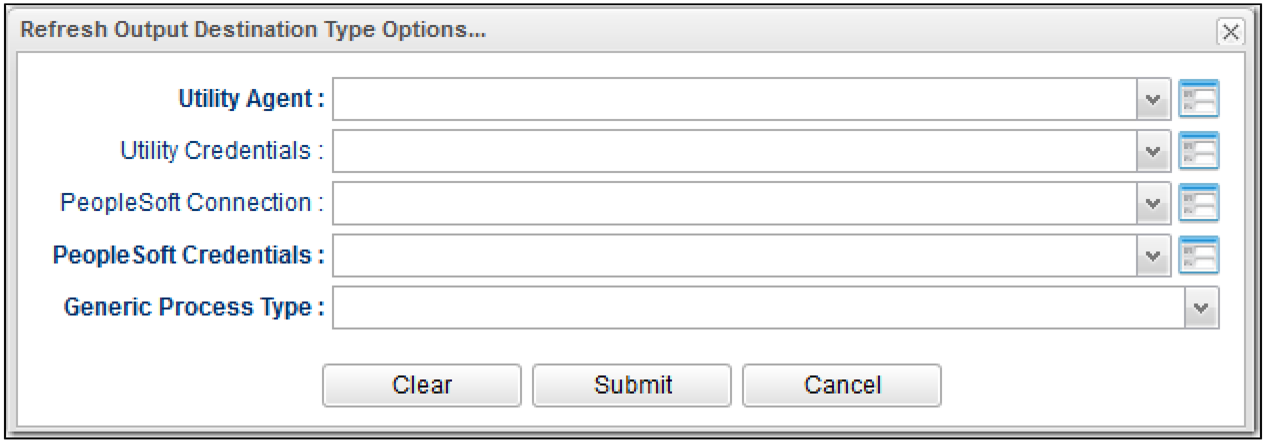
Process/Job Name


Refresh Process/Job Name Options...
Utility Agent :
Utility Credentials :
PeopleSoft Connection :
PeopleSoft Credentials :
Process Type :
Clear
Submit
Cancel

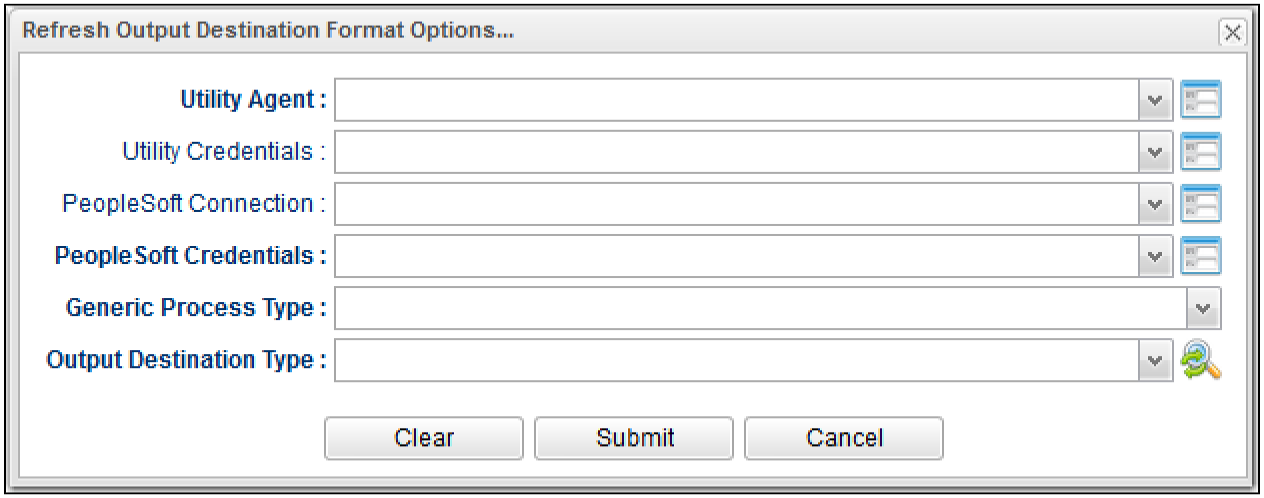
Server Name


Refresh Server Name Options...
Utility Agent :
Utility Credentials :
PeopleSoft Connection :
PeopleSoft Credentials :
Clear
Submit
Cancel

Output Destination Type


Refresh Output Destination Type Options...
Utility Agent :
Utility Credentials :
PeopleSoft Connection :
PeopleSoft Credentials :
Generic Process Type :
Clear
Submit
Cancel

Output Destination Format


Refresh Output Destination Format Options...
Utility Agent :
Utility Credentials :
PeopleSoft Connection :
PeopleSoft Credentials :
Generic Process Type :
Output Destination Type :
Clear
Submit
Cancel

Viewing a PeopleSoft Task Instance

When a PeopleSoft task is launched, the Controller creates a task instance record of that task.

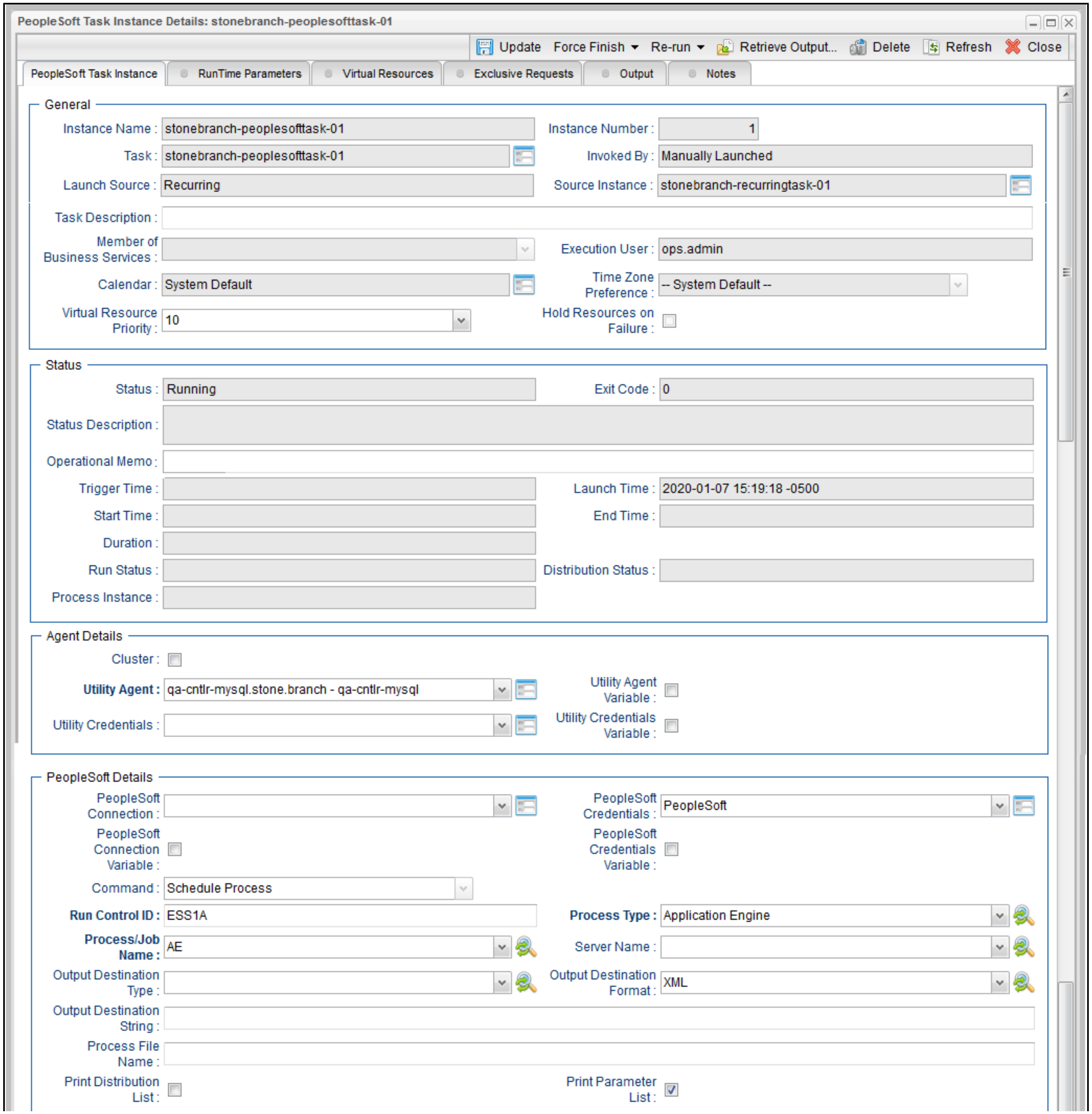
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the PeopleSoft Task Details for that task
- Activity Monitor
- Task Instances list

PeopleSoft Task Instance Details

The following PeopleSoft Task Instance Details contains information on the execution of the task shown in the PeopleSoft Task Details.


PeopleSoft Task Instance Details: stonebranch-peoplesofttask-01
Update
Force Finish
Re-run
Retrieve Output...
Delete
Refresh
Close
PeopleSoft Task Instance
RunTime Parameters
Virtual Resources
Exclusive Requests
Output
Notes

General

Instance Name : stonebranch-peoplesofttask-01
Instance Number : 1
Task : stonebranch-peoplesofttask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

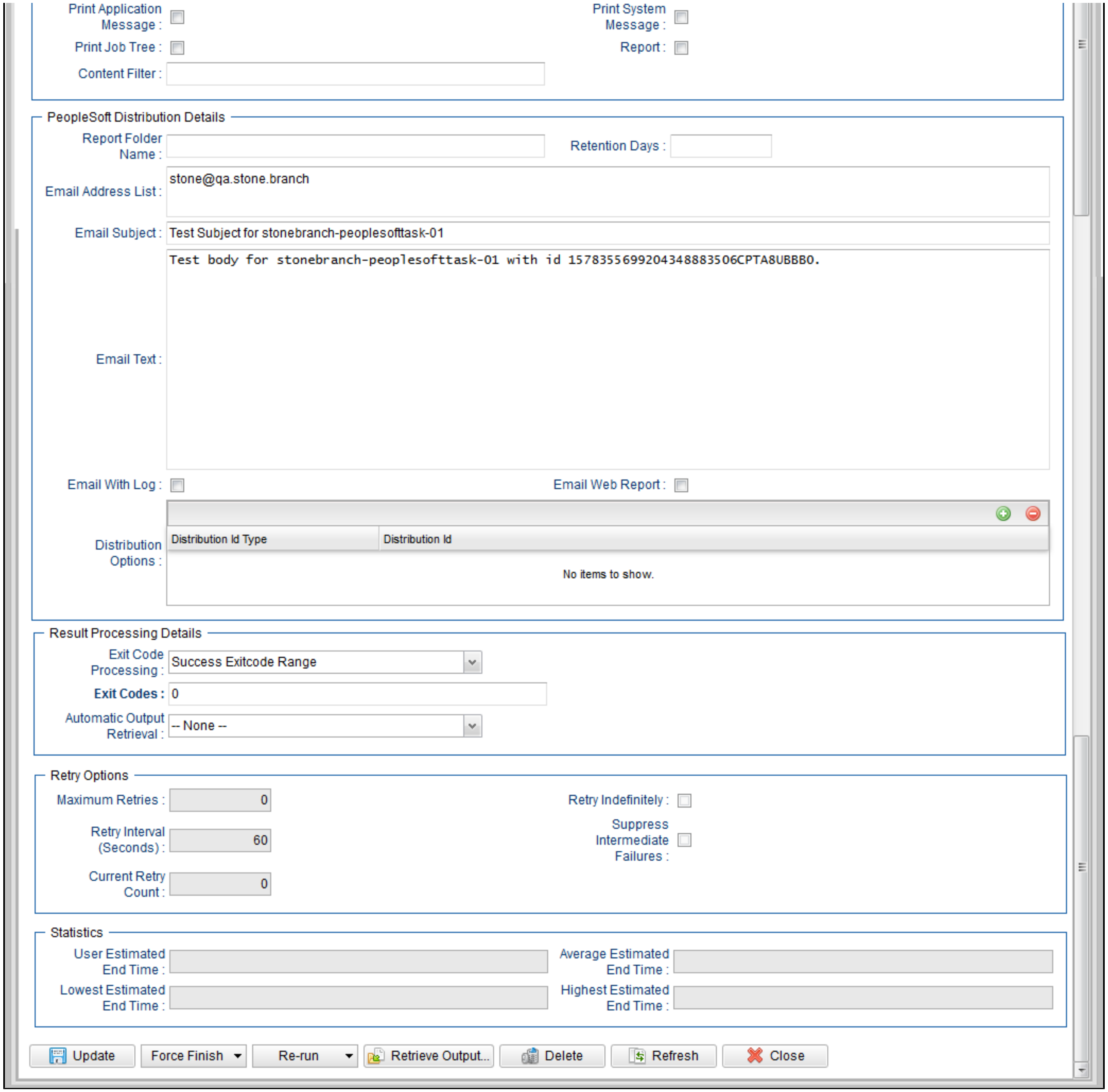
Status : Running
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-07 15:19:18 -0500
Start Time :
End Time :
Duration :
Run Status :
Distribution Status :
Process Instance :

Agent Details

Cluster : ☐
Utility Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Utility Agent Variable : ☐
Utility Credentials :
Utility Credentials Variable : ☐

PeopleSoft Details

PeopleSoft Connection :
PeopleSoft Credentials : PeopleSoft
PeopleSoft Connection Variable : ☐
PeopleSoft Credentials Variable : ☐
Command : Schedule Process
Run Control ID : ESS1A
Process Type : Application Engine
Process/Job Name : AE
Server Name :
Output Destination Type :
Output Destination Format : XML
Output Destination String :
Process File Name :
Print Distribution List : ☐
Print Parameter List : ☑



Print Application Message : ☐

Print System Message : ☐

Print Job Tree : ☐

Report : ☐

Content Filter :

PeopleSoft Distribution Details

Report Folder Name :

Retention Days :

Email Address List : stone@qa.stone.branch

Email Subject : Test Subject for stonebranch-peoplesofttask-01

Email Text : Test body for stonebranch-peoplesofttask-01 with id 1578355699204348883506CPTA8UBBB0.

Email With Log : ☐

Email Web Report : ☐

Distribution Options :

Distribution Id Type	Distribution Id
No items to show.	

Result Processing Details

Exit Code Processing : Success Exitcode Range

Exit Codes : 0

Automatic Output Retrieval : -- None --

Retry Options

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Current Retry Count : 0

Statistics

User Estimated End Time :

Average Estimated End Time :

Lowest Estimated End Time :

Highest Estimated End Time :

PeopleSoft Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in PeopleSoft Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Launch Source	System-supplied; Source from which this Recurring task was launched. Options: - Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. - Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. - Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. - Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: - – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. - Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. - Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.

Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Run Status	Status of the PeopleSoft process being monitored on the PeopleSoft Process Scheduler
Distribution Status	Displays the distribution status for reports associated with the main (parent) process being monitored on the PeopleSoft system.
Process Instance	The Instance ID (generated by the PeopleSoft system) associated with the process being monitored on the PeopleSoft system.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting a Utility Agent Cluster is required. If Cluster is selected, selecting a Utility Agent is not required unless Utility Agent Variable is selected.
Utility Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify a Utility Agent, you must specify a Utility Agent Cluster or Utility Cluster Broadcast.

Utility Agent Variable	If enabled, the Utility Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the **Utility Agent Variable** field to **Yes** and specify the Utility Agent variable in the **Utility Agent Unresolved** field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the **Utility Agent Variable** field to **No** and specify the Utility Agent reference in the **Utility Agent** field.
Utility Agent Cluster	If Cluster is selected; Group of Agents, one of which the Controller will choose to run this task. You can specify a Utility Agent Cluster in addition to or in place of a specific Utility Agent. If you specify a Utility Agent and a Utility Agent Cluster, the Controller first tries to run the task on the specific Utility Agent. If the Utility Agent is not available, the Controller reverts to the Utility Agent Cluster. See Agent Clusters for more information.
Utility Agent Cluster Variable	Indication of whether the Utility Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Utility Agent Cluster as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the **Utility Agent Cluster Variable** field to **Yes** and specify the Utility Agent Cluster variable in the **Utility Agent Cluster Unresolved** field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the **Utility Agent Cluster Variable** field to **No** and specify the Utility Agent Cluster reference in the **Utility Agent Cluster** field.
Utility Credentials	Login credentials that the Agent will use to access the Universal Command server machine. Required if the Agent Credentials Required Universal Controller system property is true.
Utility Credentials Variable	Indication of whether the Utility Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Utility Credentials as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Credentials reference to using a Utility Credentials variable, you must change the **Utility Credentials Variable** field to **Yes** and specify the Utility Credentials variable in the **Utility Credentials Unresolved** field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the **Utility Credentials Variable** field to **No** and specify the Utility Credentials reference in the **Utility Credentials** field.
PeopleSoft Details	This section contains assorted detailed information about the task.

PeopleSoft Connection	Name of the PeopleSoft connection. The PeopleSoft connection specifies information about the PeopleSoft server. Select an existing PeopleSoft Connection from the drop-down list or click the icon to create a new PeopleSoft Connection.
PeopleSoft Connection Variable	Indication of whether the PeopleSoft Connection field is a reference field for selecting a specific PeopleSoft Connection (unchecked) or a text field for specifying the PeopleSoft Connection as a variable (checked). Use the format: ${variable name} . The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a PeopleSoft Connection reference to using a PeopleSoft Connection variable, you must change the **PeopleSoft Connection Variable** field to **Yes** and specify the PeopleSoft Connection variable in the **PeopleSoft Connection Unresolved** field. Conversely, to change from using a PeopleSoft Connection variable to using a PeopleSoft Connection reference, you must change the **PeopleSoft Connection Variable** field to **No** and specify the PeopleSoft Connection reference in the **PeopleSoft Connection** field.
PeopleSoft Credentials	Login credentials that the Controller will use to access the PeopleSoft system. The credentials are stored in the Universal Controller credentials table; see Credentials. Note Either the PeopleSoft Connection or the PeopleSost task using that connection must specify PeopleSoft Credentials. If a PeopleSoft task using the PeopleSoft Connection specifies PeopleSoft Credentials, those PeopleSoft task credentials override the PeopleSoft Connection credentials.
PeopleSoft Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Command	PeopleSoft command to execute. Options: • Schedule Process Schedule a process. • Schedule Job Schedule a job. • Run Jobset Run a job. Default is Schedule Process.

Run Control ID	If Command = Schedule Process or Schedule Job; Run control ID to be used for the process submission.
Process Type	If Command = Schedule Process or Schedule Job; Specific type of PeopleSoft process. (If Command = Schedule Job, Process Type defaults to PSJob and is read-only.)
Process/Job Name	If Command = Schedule Process or Schedule Job; Name of the PeopleSoft process/job.
Server Name	If Command = Schedule Process or Schedule Job; Specific server name. If Command = Schedule Process or Schedule Job; Specific server name.
Output Destination Type	If Command = Schedule Process or Schedule Job; Type of output for the submitted process.
Output Destination Format	If Command = Schedule Process or Schedule Job; Override of the default output format for the submitted process.
Output Destination String	If Command = Schedule Process or Schedule Job; File path or printer destination for the output.
Process File Name	If Command = Schedule Process or Schedule Job; Dependent file name.
Main Schedule Name	If Command = Run Jobset; Name of the jobset schedule.
Main Job Name	If Command = Run Jobset; Name of the job within the jobset schedule.
Print Distribution List	Specification for whether or not the report-recipient distribution list is included in the Job Report.
Print Parameter List	Specification for whether or not the parameter list job items are included in the Job Report.
Print Application Message	Specification for whether or not the application messages for the monitored processes are included in the Job Report.
Print System Message	Specification for whether or not the application messages for the monitored processes are included in the Job Report.
Print Job Tree	Specification for whether or not the job tree is included in the Job Report.

Report	Specification for whether or not reports associated with a process are returned.
Content Filter	Comma-delimited list of report file suffixes that will not be returned. For example: pdf,xls
PeopleSoft Distribution Details	If Command = Schedule Process or Schedule Job; This section contains assorted distribution details about the task.
Report Folder Name	If Command = Schedule Process or Schedule Job; Folder in which the report will be viewed in Report Manager.
Retention Days	If Command = Schedule Process or Schedule Job; Number of days that reports generated by the submitted process should be retained by the system.
Email Address List	If Command = Schedule Process; List of email addresses, separated by semicolons.
Email Subject	If Command = Schedule Process; Subject line of the email. If not specified, the default subject line is used.
Email Text	If Command = Schedule Process; Body of the email. If not specified, the default body message is used.
Email With Log	If Command = Schedule Process; Indication (checked or unchecked) for whether or not to attach log files resulting from the Structured Query Report. Only applicable if Process Type = SQR Report.
Email Web Report	If Command = Schedule Process; Indication (checked or unchecked) for whether or not to include a link to the completed report output. Only applicable if Output Destination Type = WEB.
Distribution Options	If Command = Schedule Process; Recipients of the process output To add an option, click the **+** icon and enter: • **Distribution Id Type**: User or Role • **Distribution Id** To delete an option, select in the list of variables and click the **-** icon.
Result Processing Details	This section contains assorted detailed information about result processing for this task.

Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: - Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. - Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. - Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. - Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. - Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: - Standard Output (STDOUT) - Standard Error (STDERR) - File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.

Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. Options: - None Do not attach any output to the task instance record. - Standard Output Attach all standard output. - Standard Error Attach standard error output. - File Attach the file specified in the Output File field. - Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. - If a **Start Line** value is not specified, the default is 1. - If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.
Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.

Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day. Valid values: • -- None -- ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors. ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. Default is – None --.
Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

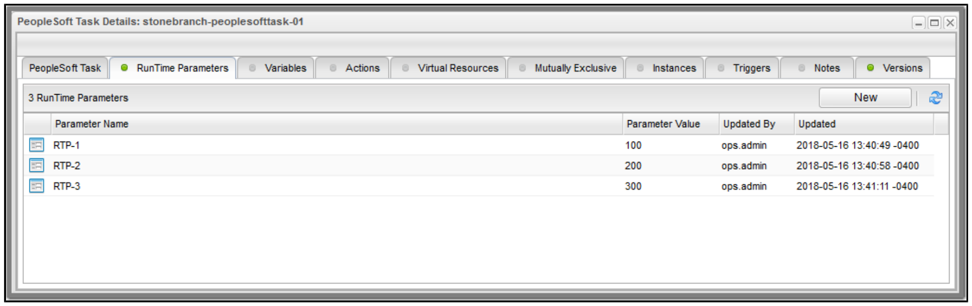
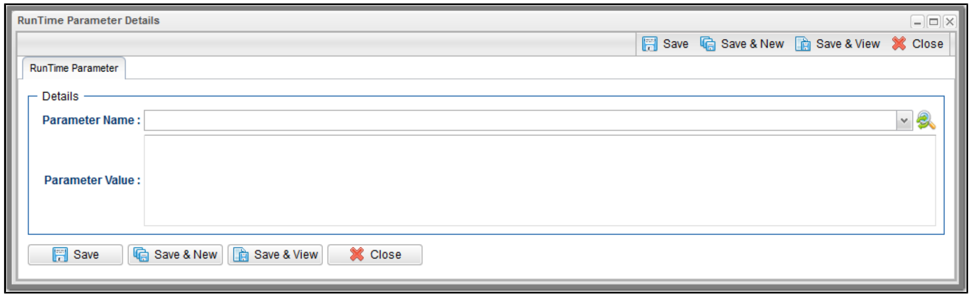
Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
RunTime Parameters	See Adding RunTime Parameters, below.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.

Output	Displays output generated from the process, if any, based on specifications provided by the user in the Automatic Output Retrieval fields in the task Details. If automatic output retrieval was not available or was not selected, output can be obtained by clicking the Retrieve Output button.
Notes	Lists all notes associated with this record.

Adding RunTime Parameters

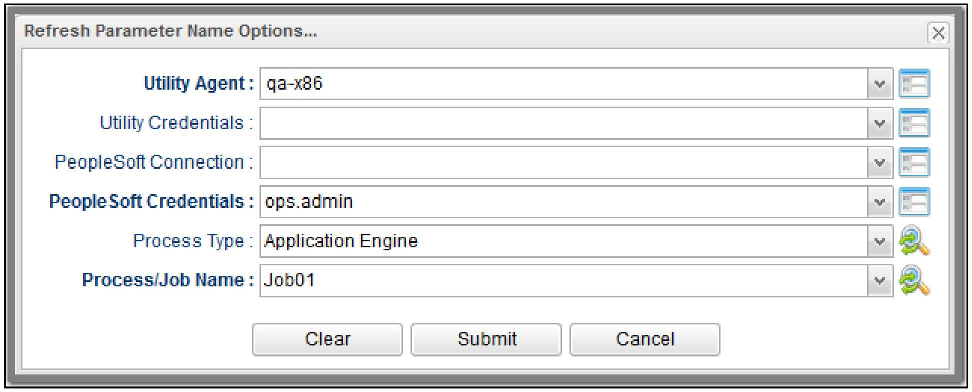
You can add one or more RunTime Parameters for each PeopleSoft task, and define the values for those parameters, as described below.

Adding a Parameter

<table>
<tr><td>Step 1</td><td>Open the PeoplsSoft task to which you want to add the parameter.</td></tr>
<tr><td>Step 2</td><td>Click the Runtime Parameters tab. The Runtime Parameters list displays a list of all Runtime Parameters for which values have been defined for this task.

PeopleSoft Task Details: stonebranch-peoplesofttask-01
PeopleSoft Task
RunTime Parameters
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
3 RunTime Parameters
New
<table>
<tr><th>Parameter Name</th><th>Parameter Value</th><th>Updated By</th><th>Updated</th></tr>
<tr><td>RTP-1</td><td>100</td><td>ops.admin</td><td>2018-05-16 13:40:49 -0400</td></tr>
<tr><td>RTP-2</td><td>200</td><td>ops.admin</td><td>2018-05-16 13:40:58 -0400</td></tr>
<tr><td>RTP-3</td><td>300</td><td>ops.admin</td><td>2018-05-16 13:41:11 -0400</td></tr>
</table></td></tr>
<tr><td>Step 3</td><td>Click the New button to display RunTime Parameter Details.

RunTime Parameter Details
Save
Save & New
Save & View
Close
RunTime Parameter
Details
Parameter Name :
Parameter Value :
Save
Save & New
Save & View
Close

Note

If the Command field in the PeopleSoft Details specifies Schedule Job, the RunTime Parameter Details also requires you to select a Process Name and Process Type.</td></tr>
</table>

Step 4	Click the refresh picker icon next to the **Parameter Name** field to select options for the RunTime Parameter.  Refresh Parameter Name Options... Clear Submit Cancel **Utility Agent :** qa-x86 Utility Credentials : PeopleSoft Connection : **PeopleSoft Credentials :** ops.admin Process Type : Application Engine **Process/Job Name :** Job01
Step 5	For each field on the Refresh Parameter Name Options... dialog, you can select from a list of values that may have changed since the last time that a value was selected. Most of the fields on a Refresh Options... dialog are fields from the PeopleSoft Task Details, and the values for those fields in the dialog are, by default, the same as the values for the fields in the Details. You can keep the current values or change them from their drop-down lists. When you click the Submit button on the Refresh Parameter Name Options... dialog, the drop-down list for the **Parameter Name** field in the RunTime Parameter Details is populated with values that are determined by the values that you submitted on the Refresh Parameter Name Options... dialog.
Step 6	Select a parameter from the drop-down list and enter a **Parameter Value**.
Step 7	Click the **Save** button.

Deleting a RunTime Parameter

To delete a single RunTime Parameter for a task, either:

- Right-click the parameter on the RunTime Parameters list and click **Delete** on the Action menu.
- Open the RunTime Parameter record and click the **Delete** button.

Running a PeopleSoft Task

You can run a PeopleSoft task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the PeopleSoft tasks list or PeopleSoft Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

File Transfer Task

- Overview
- Built-In Variables
- Creating a File Transfer Task
    - File Transfer Protocols
    - FTP/SFTP/FTPS File Transfer Task Details
    - FTP/SFTP/FTPS File Transfer Task Details Field Descriptions
    - UDM File Transfer Task Details
    - UDM File Transfer Task Details Field Descriptions
- Viewing a File Transfer Task Instance
    - FTP/SFTP/FTPS File Transfer Task Instance Details
    - FTP/SFTP/FTPS File Transfer Task Instance Details Field Descriptions
    - UDM File Transfer Task Instance Details
    - UDM File Transfer Task Instance Details Field Descriptions
- Output Redirection
    - -uagstdio Examples
- Specifying When a Task Runs
- Running a File Transfer Task
- Monitoring Task Execution
- Code Pages

Overview

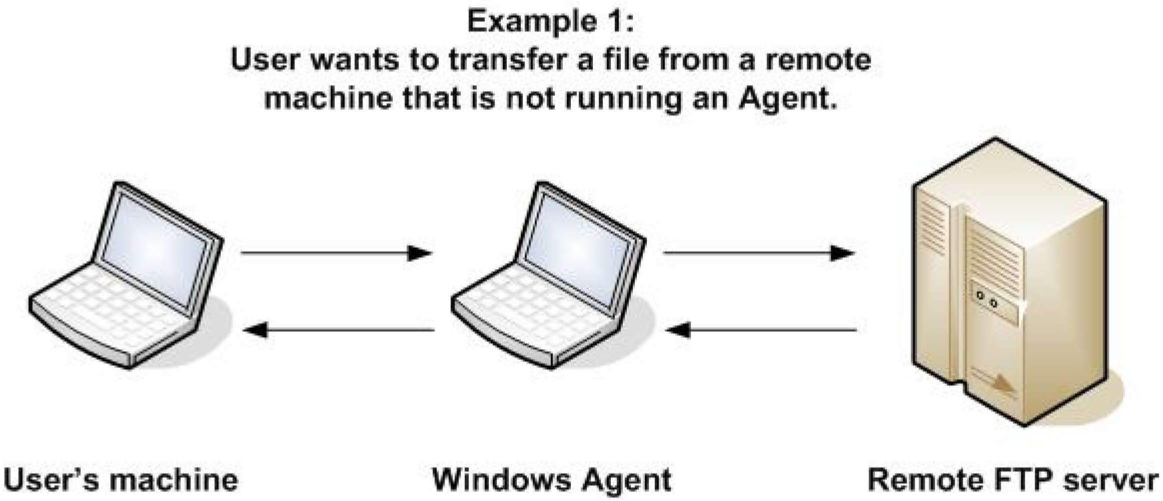
The File Transfer task allows you to execute file transfers on remote machines using any of the following protocols:

- FTP
- SFTP
- UDM
- FTPS

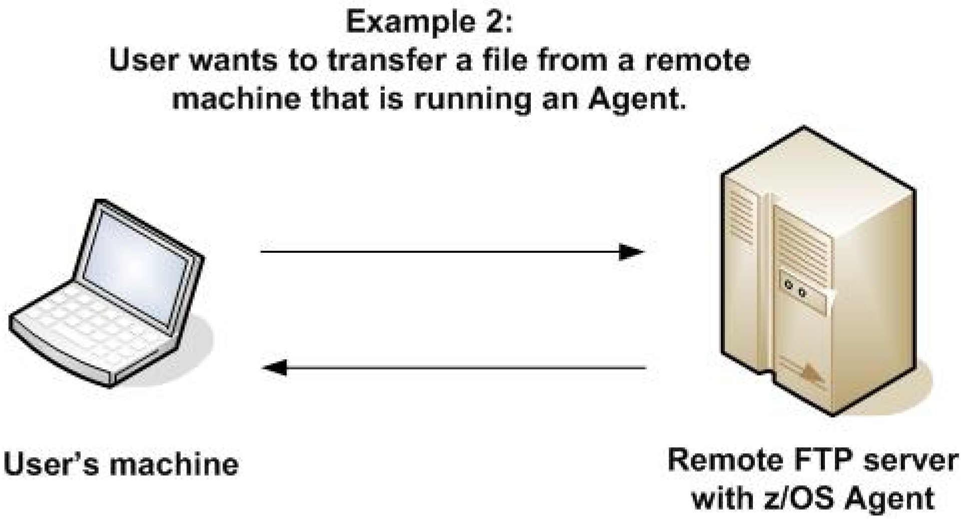
To run a File Transfer task, you need Universal Agent for Linux/Unix, z/OS, or Windows to communicate with the File Transfer server. The Agent can, but does not have to be, running on the same machine as the File Transfer server.

The following examples provide sample configurations for executing file transfers using a File Transfer task.

In the first example, the user wants to transfer a file from a remote File Transfer Server on a machine that does not have an Agent running on it. In this case, the File Transfer task definition provides an address and login credentials for the machine where the Agent is running as well as address and login credentials for the machine where the File Transfer server is running.


Example 1:
User wants to transfer a file from a remote machine that is not running an Agent.
User's machine
Windows Agent
Remote FTP server

In the second example, the user wants to transfer a file from a remote File Transfer Server on a z/OS machine that does have an Agent running on it. In this case, the login credentials for the Agent machine and the File Transfer server machine are the same.


Example 2:
User wants to transfer a file from a remote machine that is running an Agent.
User's machine
Remote FTP server with z/OS Agent

Built-In Variables

The following built-in variables can be used in a File Transfer task to pass data where appropriate:

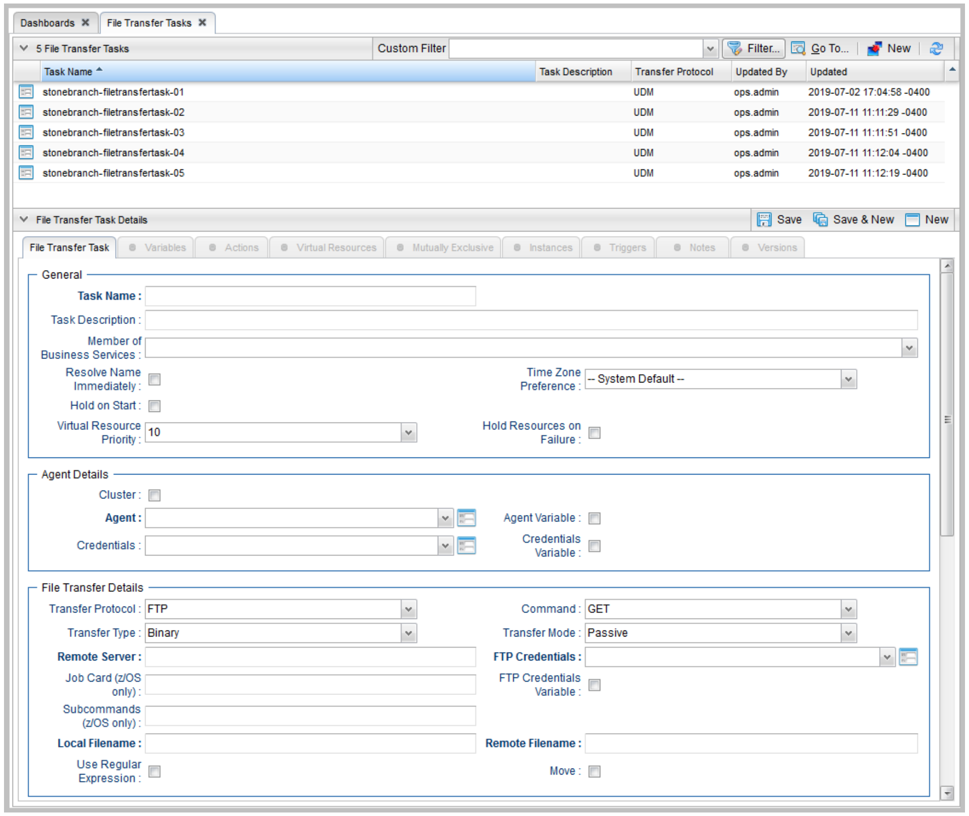
- Task Instance variables
- Agent-Based Task Instance variables
- File Transfer Task variables

Creating a File Transfer Task

Step 1

From the Automation Center navigation pane, select **Tasks > File Transfer Tasks**. The File Transfer Tasks list displays a list of all currently defined File Transfer tasks.

Below the list, File Transfer Task Details for a new File Transfer task displays.


Dashboards
File Transfer Tasks
5 File Transfer Tasks
Custom Filter
Filter...
Go To...
New
File Transfer Task Details
Save
Save & New
New
File Transfer Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately :
Hold on Start :
Hold Resources on Failure :
Agent Details
Cluster :
Agent :
Credentials :
Agent Variable :
Credentials Variable :
File Transfer Details
Remote Server :
FTP Credentials :
Job Card (z/OS only) :
FTP Credentials Variable :
Subcommands (z/OS only) :
Local Filename :
Remote Filename :
Use Regular Expression :
Move :

Task Name	Task Description	Transfer Protocol	Updated By	Updated
stonebranch-filetransfertask-01		UDM	ops.admin	2019-07-02 17:04:58 -0400
stonebranch-filetransfertask-02		UDM	ops.admin	2019-07-11 11:11:29 -0400
stonebranch-filetransfertask-03		UDM	ops.admin	2019-07-11 11:11:51 -0400
stonebranch-filetransfertask-04		UDM	ops.admin	2019-07-11 11:12:04 -0400
stonebranch-filetransfertask-05		UDM	ops.admin	2019-07-11 11:12:19 -0400

Time Zone Preference : -- System Default --

Virtual Resource Priority : 10

Transfer Protocol : FTP

Command : GET

Transfer Type : Binary

Transfer Mode : Passive

Step 2	Enter/select Details for a new File Transfer task, using the field descriptions below as a guide. • Required fields display in **boldface**. • Default values for fields, if available, display automatically. To display more of the Details fields on the screen, you can either: • Use the scroll bar. • Temporarily hide the list above the Details. • Click the **New** button above the list to display a pop-up version of the Details.
Step 3	Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

File Transfer Protocols

When you create a File Transfer task, you select a file transfer protocol: FTP, SFTP, UDM, or FTPS.

Note

The File Transfer Task Exclude Protocols Universal Controller system property permits the exclusion of one or more, but not all, protocols from being selected (see the Transfer Protocol field, below.)

The Details for FTP, SFTP, and FTPS transfer protocols are the same; the Details for the UDM transfer protocol differs considerably.

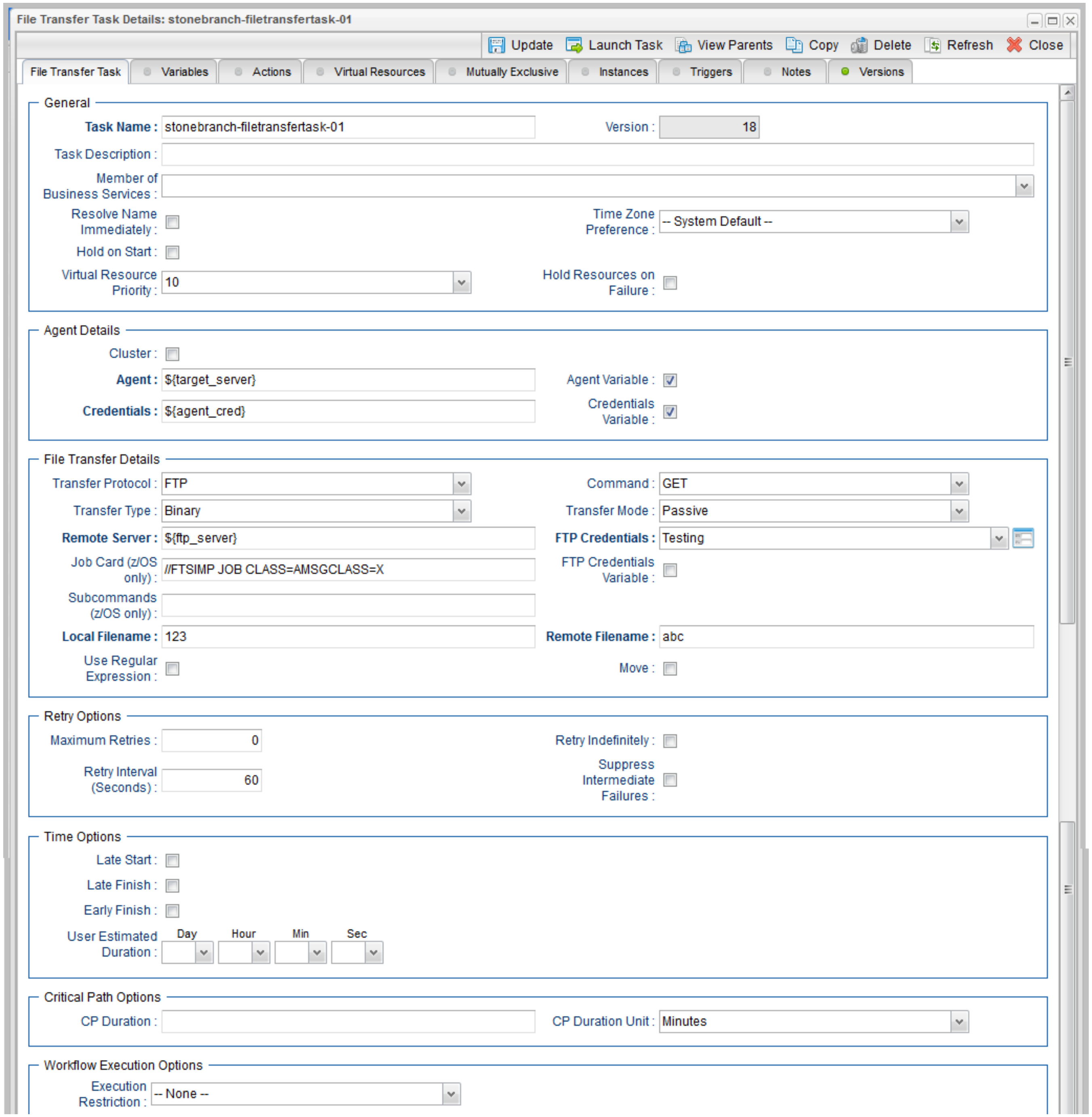
Using **SFTP** requires that you supply a valid credential that specifies the location of the SSL/TLS Private key on your Agent. In the Credentials Details, you supply the location for the private key in the field "Key Location (File Transfer only)". This location must exist on the Agent where you intend to run the SFTP task.

Make sure you have your private/public keys properly set up and working before you configure the Controller to use it. For example, to validate the keys, log into your destination server from your agent server using ssh.

FTP/SFTP/FTPS File Transfer Task Details

The following FTP/SFTP/FTPS File Transfer Task Details is for an existing FTP/SFTP/FTPS File Transfer task.

Depending on the values that you enter / select for these fields, and whether or not the FTP/SFTP/FTPS File Transfer task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the FTP/SFTP/FTPS File Transfer Task Details.


File Transfer Task Details: stonebranch-filetransfertask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
File Transfer Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

General

Task Name : stonebranch-filetransfertask-01
Version : 18
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Agent Details

Cluster : ☐
Agent : ${target_server}
Agent Variable : ☑
Credentials : ${agent_cred}
Credentials Variable : ☑

File Transfer Details

Transfer Protocol : FTP
Command : GET
Transfer Type : Binary
Transfer Mode : Passive
Remote Server : ${ftp_server}
FTP Credentials : Testing
Job Card (z/OS only) : //FTSIMP JOB CLASS=AMSGCLASS=X
FTP Credentials Variable : ☐
Subcommands (z/OS only) :
Local Filename : 123
Remote Filename : abc
Use Regular Expression : ☐
Move : ☐

Retry Options

Maximum Retries : 0
Retry Indefinitely : ☐
Retry Interval (Seconds) : 60
Suppress Intermediate Failures : ☐

Time Options

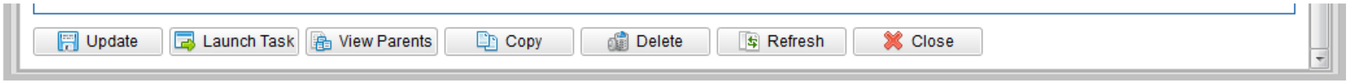
Late Start : ☐
Late Finish : ☐
Early Finish : ☐
User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :
CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --



FTP/SFTP/FTPS File Transfer Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in FTP/SFTP/FTPS File Transfer Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.

Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.
Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.

Broadcast	Displays only if Cluster is selected; Indication that selecting a Cluster Broadcast is required. Selecting Broadcast hides the Agent and Agent Cluster fields; you cannot select values for them.
Cluster Broadcast	Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.
Cluster Broadcast Variable	Indication of whether the Cluster Broadcast field is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the Cluster Broadcast as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Cluster Broadcast reference to using a Cluster Broadcast variable, you must change the **Cluster Broadcast Variable** field to **Yes** and specify the Cluster Broadcast variable in the **Cluster Broadcast Unresolved** field. Conversely, to change from using a Cluster Broadcast variable to using a Cluster Broadcast reference, you must change the **Cluster Broadcast Variable** field to **No** and specify the Cluster Broadcast reference in the **Cluster Broadcast** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
File Transfer Details	This section contains assorted detailed information about the task.

Transfer Protocol	Type of transfer protocol for this file transfer. Options: - FTP - SFTP - UDM - FTPS
Command	File Transfer command being executed. Options: - GET - Copies a remote file to the local computer. - PUT - Copies a local file to the remote computer. - MGET - Copies multiple remote files to the local computer. - MPUT - Copies multiple local files to the remote computer. - DELETE - Deletes the specified file from the remote computer. - MDELETE - Deletes the specified file(s) from the remote computer - MKDIR - Creates the specified directory on the remote computer. - RMDIR - Removes the specified directory from the remote computer.
Job Card (z/OS only)	For z/OS, the job card information for the JCL statement. Example:
Subcommands (z/OS only)	For z/OS, any subcommands used in the JCL statement.
Transfer Type	Data format of the file being transferred. Options: - Binary - ASCII
Transfer Mode	If Transfer Protocol is FTP or FTPS; Transfer mode. Options: - Active - Passive - Extended Passive

Job Card (z/OS only) example:

```
//File TransferJOB01 JOB (File Transfer,001),FANNY,MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY=&SYSUID,CLASS=A
```

Remote Server	Required if Transfer Protocol = FTP, SFTP or FTPS; name or IP address of the File Transfer server. This machine may or may not be the same as the Agent machine. You also can specify a non-standard FTP, SFTP, or FTPS port: port number separated from the host name with a colon: "some.server.com:2222".
FTP Credentials	Login credentials that the Agent will use to access the FTP or SFTP server machine. If the File Transfer server and Agent are running on the same machine, enter the same credentials as those you entered in the Credentials field.
FTP Credentials Variable	Indication of whether the FTP Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the FTP Credentials as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an FTP Credentials reference to using an FTP Credentials variable, you must change the **FTP Credentials Variable** field to **Yes** and specify the FTP Credentials variable in the **FTP Credentials Unresolved** field. Conversely, to change from using an FTP Credentials variable to using an FTP Credentials reference, you must change the **FTP Credentials Variable** field to **No** and specify the FTP Credentials reference in the **FTP Credentials** field.
Local Filename	Required if Transfer Type = FTP or SFTP; path and file name on the local server. That is, the "transfer from" file name.
Use Regular Expression	Enables the use of a regular expression in the Local Filename field.
Remote Filename	Required if Transfer Type = FTP or SFTP; path and file name on the remote server. That is, the "transfer to" file name.
Move	If Transfer Protocol = FTP, SFTP, or FTPS, and Command = GET, MGET, PUT, or MPUT; Modifies the behavior of GET/MGET and PUT/MPUT by deleting the source file(s) after being transferred to the destination. GET/MGET with Move enabled will delete the files from the remote FTP server; PUT/MPUT with Move enabled will delete the files from the local FTP client.
Retry Options	This section contains specifications for retrying the task.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.

Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: - - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) - Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. - No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note ⚠ You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

<table>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.

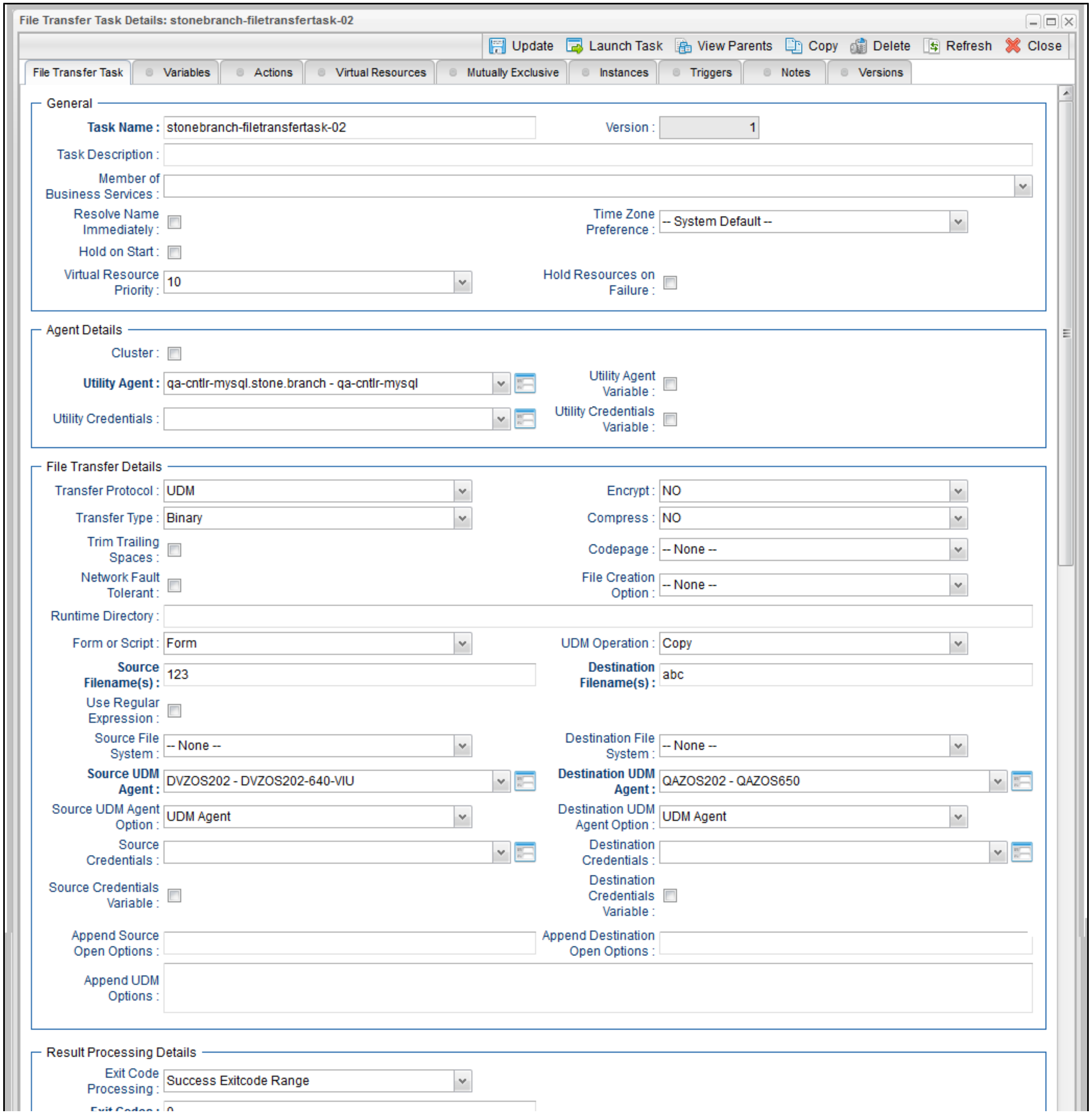
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

UDM File Transfer Task Details

The following UDM File Transfer Task Details is for an existing UDM File Transfer task.

Depending on the values that you enter / select for these fields, and whether or not the UDM File Transfer task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the UDM File Transfer Task Details.


File Transfer Task Details: stonebranch-filetransfertask-02
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
File Transfer Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

General

Task Name : stonebranch-filetransfertask-02

Version : 1

Task Description :

Member of Business Services :

Resolve Name Immediately : ☐

Time Zone Preference : -- System Default --

Hold on Start : ☐

Virtual Resource Priority : 10

Hold Resources on Failure : ☐

Agent Details

Cluster : ☐

Utility Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql

Utility Agent Variable : ☐

Utility Credentials :

Utility Credentials Variable : ☐

File Transfer Details

Transfer Protocol : UDM

Encrypt : NO

Transfer Type : Binary

Compress : NO

Trim Trailing Spaces : ☐

Codepage : -- None --

Network Fault Tolerant : ☐

File Creation Option : -- None --

Runtime Directory :

Form or Script : Form

UDM Operation : Copy

Source Filename(s) : 123

Destination Filename(s) : abc

Use Regular Expression : ☐

Source File System : -- None --

Destination File System : -- None --

Source UDM Agent : DVZOS202 - DVZOS202-640-VIU

Destination UDM Agent : QAZOS202 - QAZOS650

Source UDM Agent Option : UDM Agent

Destination UDM Agent Option : UDM Agent

Source Credentials :

Destination Credentials :

Source Credentials Variable : ☐

Destination Credentials Variable : ☐

Append Source Open Options :

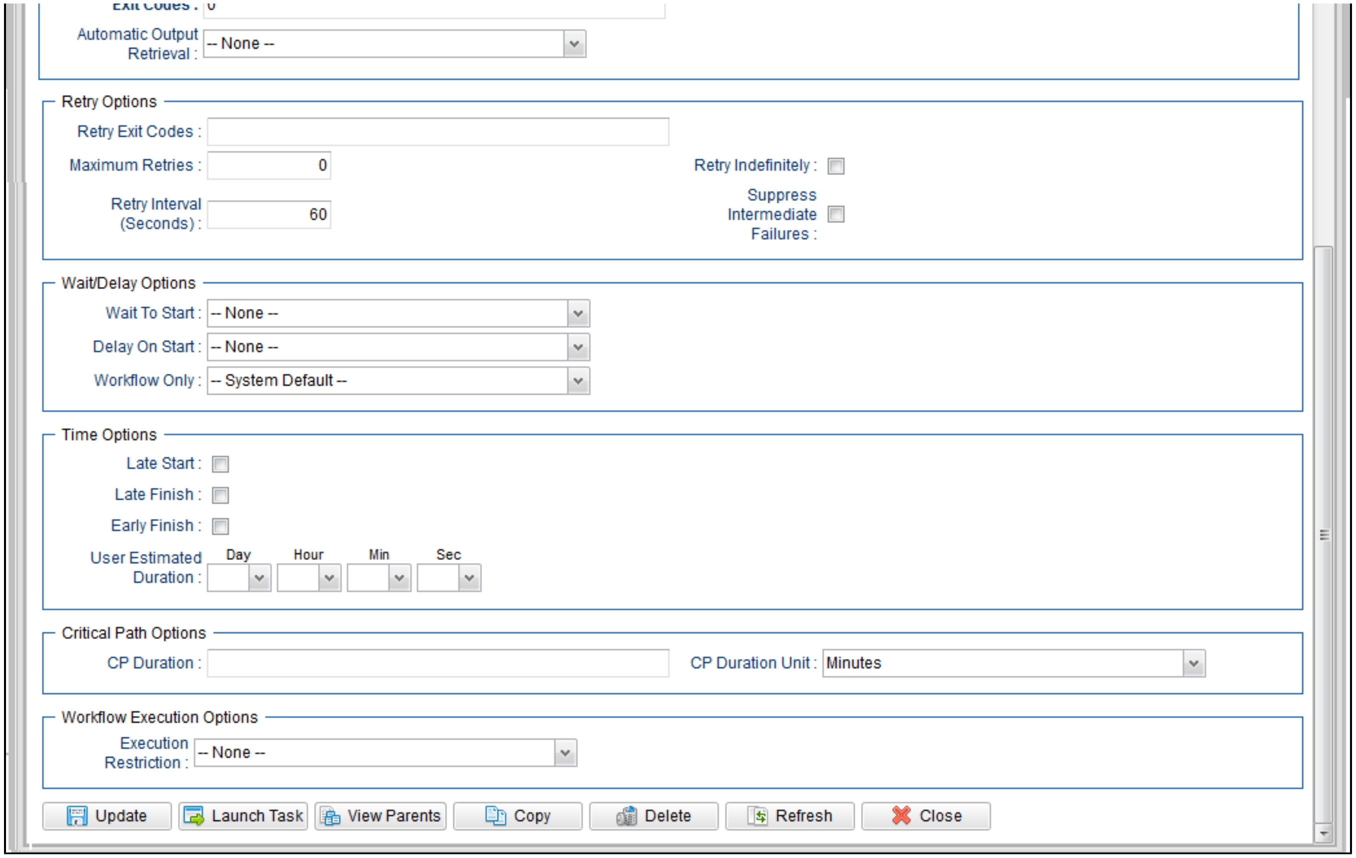
Append Destination Open Options :

Append UDM Options :

Result Processing Details

Exit Code Processing : Success Exitcode Range

Exit Codes : 0



Exit Codes : 0

Automatic Output Retrieval : -- None --

Retry Options

Retry Exit Codes :

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Wait/Delay Options

Wait To Start : -- None --

Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

UDM File Transfer Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in UDM File Transfer Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.

Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting a Utility Agent Cluster is required. If Cluster is selected, selecting a Utility Agent is not required unless Utility Agent Variable is selected.
Utility Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify a Utility Agent, you must specify a Utility Agent Cluster or Utility Cluster Broadcast.

Utility Agent Variable	If enabled, the Utility Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the **Utility Agent Variable** field to **Yes** and specify the Utility Agent variable in the **Utility Agent Unresolved** field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the **Utility Agent Variable** field to **No** and specify the Utility Agent reference in the **Utility Agent** field.
Utility Agent Cluster	If Cluster is selected; Group of Agents, one of which the Controller will choose to run this task. You can specify a Utility Agent Cluster in addition to or in place of a specific Utility Agent. If you specify a Utility Agent and a Utility Agent Cluster, the Controller first tries to run the task on the specific Utility Agent. If the Utility Agent is not available, the Controller reverts to the Utility Agent Cluster. See Agent Clusters for more information.
Utility Agent Cluster Variable	Indication of whether the Utility Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Utility Agent Cluster as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the **Utility Agent Cluster Variable** field to **Yes** and specify the Utility Agent Cluster variable in the **Utility Agent Cluster Unresolved** field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the **Utility Agent Cluster Variable** field to **No** and specify the Utility Agent Cluster reference in the **Utility Agent Cluster** field.
Broadcast	Displays only if Cluster is selected; Indication that selecting a Cluster Broadcast is required. Selecting Broadcast hides the Agent and Agent Cluster fields; you cannot select values for them.
Utility Cluster Broadcast	Group of Agents, all of which will run this task (compare with Utility Agent Cluster). You can specify a Utility Cluster Broadcast in place of a specific Utility Agent and/or Utility Agent Cluster. Each instance of the task running on its own Utility Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.

Utility Cluster Broadcast Variable	Indication of whether the Utility Cluster Broadcast field is a reference field for selecting a specific Utility Cluster Broadcast (unchecked) or a text field for specifying the Utility Cluster Broadcast as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Cluster Broadcast reference to using a Utility Cluster Broadcast variable, you must change the **Utility Cluster Broadcast Variable** field to **Yes** and specify the Utility Cluster Broadcast variable in the **Utility Cluster Broadcast Unresolved** field. Conversely, to change from using a Utility Cluster Broadcast variable to using a Utility Cluster Broadcast reference, you must change the **Utility Cluster Broadcast Variable** field to **No** and specify the Utility Cluster Broadcast reference in the *Utility Cluster Broadcast * field.
Utility Credentials	Login credentials that the Agent will use to access the Universal Command server machine. Required if the Agent Credentials Required Universal Controller system property is true.
Utility Credentials Variable	Indication of whether the Utility Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Utility Credentials as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Credentials reference to using a Utility Credentials variable, you must change the **Utility Credentials Variable** field to **Yes** and specify the Utility Credentials variable in the **Utility Credentials Unresolved** field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the **Utility Credentials Variable** field to **No** and specify the Utility Credentials reference in the **Utility Credentials** field.
File Transfer Details	This section contains assorted detailed information about the task.
Transfer Protocol	Type of transfer protocol for this file transfer. Options: • FTP • SFTP • UDM • FTPS
Transfer Type	Type of data transfer. Options: • Binary • Text

Encrypt	The method of encryption that the Controller will use in the transfer. Options: - YES - NO (none) - RC4-SHA - RC4-MD5 - AES256-SHA - AES128-SHA - DES-CBC3-SHA - DES-CBC-SHA - NULL-SHA - NULL-MD5 - NULL-NULL - AES256-GCM-SHA384 - AES128-GCM-SHA256
Compress	The type of data compression used in the transfer, if any. Options: - YES - NO - ZLIB - HASP
Codepage	Options: (See Code Pages, below.)
File Creation Option	Specifies whether the transferred file should be created (new), appended, or replace any existing file. Options: - None - APPEND - NEW - REPLACE
Trim Trailing Spaces	If enabled, specifies that the Controller should trim trailing spaces from lines on a text transfer.
Network Fault Tolerant	Enable if the session is network fault tolerant.
Runtime Directory	Directory from which the application should be executed. Variables supported.

Form or Script	Form or Script for this UDM File Transfer to use.
UDM Operation	UDM Operation to be executed. Options: - Copy - Move Default is Copy.
Source Filename(s)	Required; Path and file name on the source UDM server.
Use Regular Expression	Enables the use of a regular expression in the Source Filename(s) field.
Destination Filename(s)	Required; Path and file name on the destination UDM server.
Source File System	Type of file system on the source server. Options: - None - DSN - HFS - LIB
Destination File System	Type of file system on the destination server. Options: - None - DSN - HFS - LIB
Source UDM Agent	Required; Name of the Agent resource defined in the Controller that describes the source UDM Agent machine (primary transfer server).
Destination UDM Agent	Required; Name of the Agent resource defined in the Controller that provides details about the destination UDM Agent machine (secondary transfer server).

Source UDM Agent Option	Defines how you will specify the Source UDM Agent. Options: • UDM Agent - Source Agent is an UDM Agent defined in the Controller. • UDM Agent Variable - Source Agent will be defined by setting the variable in the Source UDM Agent field. • UDM Agent Hostname - Source Agent runs on the host name specified in the Source UDM Agent field.
Destination UDM Agent Option	Defines how you will specify the Destination UDM Agent. Options: • UDM Agent - Destination Agent is an UDM Agent defined in the Controller. • UDM Agent Variable - Destination Agent will be defined by setting the variable in the Destination UDM Agent field. • UDM Agent Hostname - Destination Agent runs on the host name specified in the Destination UDM Agent field.
Script	Name of the Script to execute for this File Transfer task. Note If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.
Source Credentials	Specifies the source user ID and password (local to the host on which the server is running) under which the transfer operation is being carried out.
Destination Credentials	Specifies the destination user ID and password (local to the host on which the server is running) under which the transfer operation is being carried out.
Source Credentials Variable	Indication of whether the Source Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Source Credentials as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Source Credentials reference to using a Source Credentials variable, you must change the **Source Credentials Variable** field to **Yes** and specify the Source Credentials variable in the **Source Credentials Unresolved** field. Conversely, to change from using a Source Credentials variable to using a Source Credentials reference, you must change the **Source Credentials Variable** field to **No** and specify the Source Credentials reference in the **Source Credentials** field.

Destination Credentials Variable	Indication of whether the Destination Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Destination Credentials as a variable (checked). Use the format: `${variable name}.` The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Destination Credentials reference to using a Destination Credentials variable, you must change the **Destination Credentials Variable** field to **Yes** and specify the Destination Credentials variable in the **Destination Credentials Unresolved** field. Conversely, to change from using a Destination Credentials variable to using a Destination Credentials reference, you must change the **Destination Credentials Variable** field to **No** and specify the Destination Credentials reference in the **Destination Credentials** field.
Append Source Open Options	Any additional free form open command options for the source (primary) transfer server.
Append Destination Open Option	Any additional free form open command options for the destination (secondary) transfer server.
Append UDM Options	Any additional free-form Universal Data Mover command options.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field.
Output Type-Exit Code	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File

Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File-Exit Codes	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Retry Options	This section contains specifications for retrying the task.
Retry Exit Codes	Exit code range for which an auto-retry of tasks in FAILED status will occur. Exit code ranges must be in the same format as ranges specified in the Exit Codes field. Maximum Retries must be greater than 0. If this field is empty, any exit code potentially will cause a retry. Variables are supported.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.

Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.

Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

Actions	Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task. Events are: • Task instance status • Exit codes • Late start • Late finish • Early finish Actions are: **Abort Action**: Abort the task if certain events occur. For details, see Abort Actions. **Email Notification**: Send an email if certain events occur. For details, see Email Notification Actions. **Set Variable**: Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow. **SNMP Notification**: Send an email if certain events occur. For details, see SNMP Notification Actions. **System Operation**: Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.
Instances	Lists all instances of the task.
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.
Notes	Lists all notes associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning.

Viewing a File Transfer Task Instance

When a File Transfer task is launched, the Controller creates a task instance record of that task.

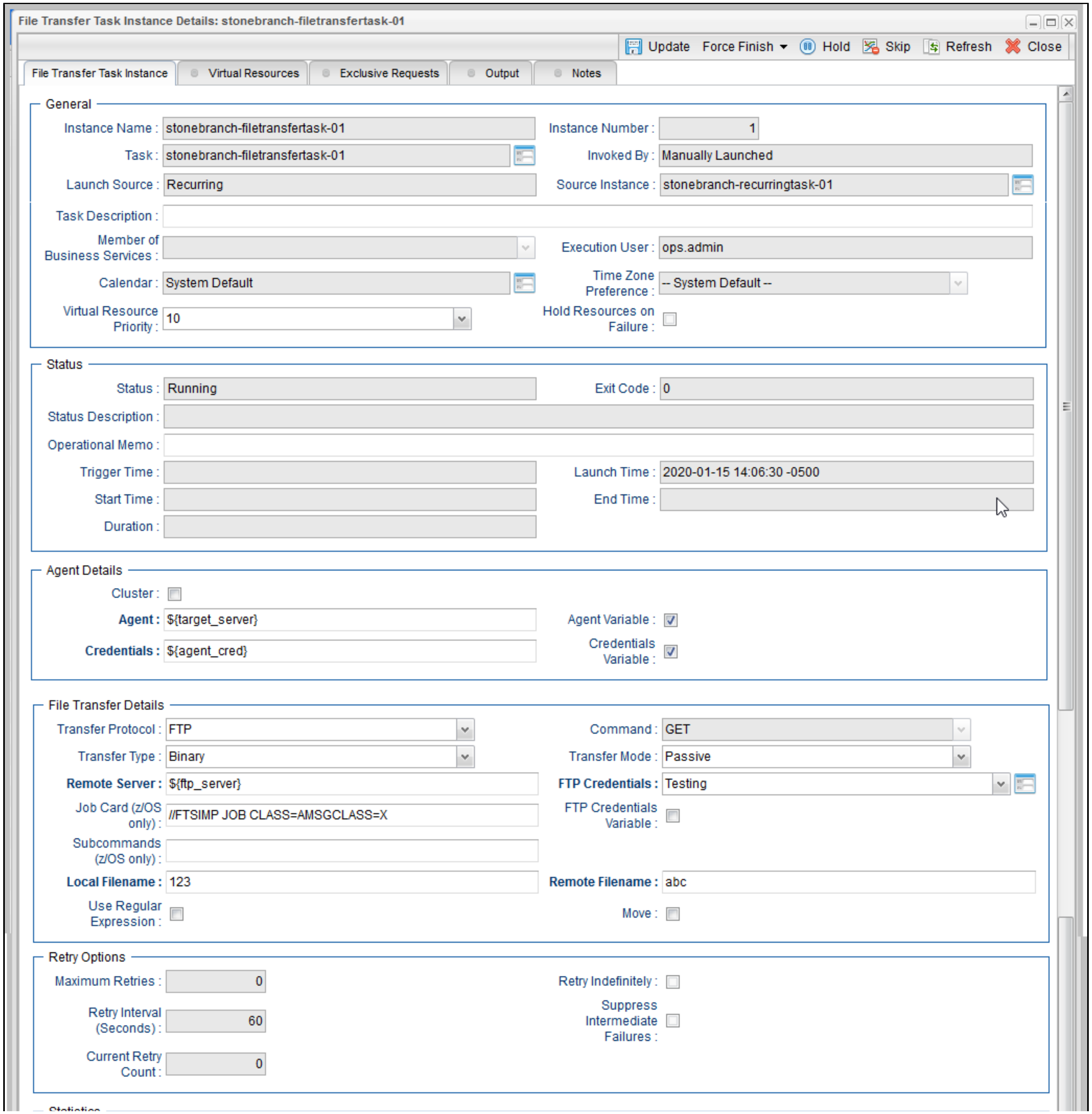
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the FTP/SFTP/FTPS or UDM File Transfer Task Details for that task
- Activity Monitor
- Task Instances list

FTP/SFTP/FTPS File Transfer Task Instance Details

The following FTP/SFTP/FTPS File Transfer Task Instance Details contains information on the execution of the task shown in the FTP/SFTP/FTPS File Transfer Task Details.


File Transfer Task Instance Details: stonebranch-filetransfertask-01
Update
Force Finish
Hold
Skip
Refresh
Close
File Transfer Task Instance
Virtual Resources
Exclusive Requests
Output
Notes

General

Instance Name : stonebranch-filetransfertask-01
Instance Number : 1
Task : stonebranch-filetransfertask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Running
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-15 14:06:30 -0500
Start Time :
End Time :
Duration :

Agent Details

Cluster : ☐
Agent : ${target_server}
Agent Variable : ☑
Credentials : ${agent_cred}
Credentials Variable : ☑

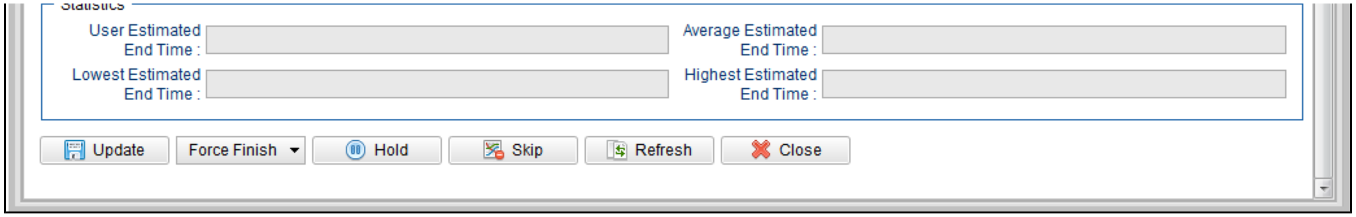
File Transfer Details

Transfer Protocol : FTP
Command : GET
Transfer Type : Binary
Transfer Mode : Passive
Remote Server : ${ftp_server}
FTP Credentials : Testing
Job Card (z/OS only) : //FTSIMP JOB CLASS=AMSGCLASS=X
FTP Credentials Variable : ☐
Subcommands (z/OS only) :
Local Filename : 123
Remote Filename : abc
Use Regular Expression : ☐
Move : ☐

Retry Options

Maximum Retries : 0
Retry Indefinitely : ☐
Retry Interval (Seconds) : 60
Suppress Intermediate Failures : ☐
Current Retry Count : 0

Statistics


Statistics
User Estimated End Time :
Average Estimated End Time :
Lowest Estimated End Time :
Highest Estimated End Time :
Update
Force Finish
Hold
Skip
Refresh
Close

FTP/SFTP/FTPS File Transfer Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in FTP/SFTP/FTPS File Transfer Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Launch Source	System-supplied; Source from which this Recurring task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: - – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. - Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. - Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.

Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.

Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
File Transfer Details	This section contains assorted detailed information about the task instance.
Transfer Protocol	Type of transfer protocol for this file transfer. Options: • FTP • SFTP • UDM • FTPS

Command	File Transfer command being executed. Options: • GET - Copies a remote file to the local computer. • PUT - Copies a local file to the remote computer. • MGET - Copies multiple remote files to the local computer. • MPUT - Copies multiple local files to the remote computer. • DELETE - Deletes the specified file from the remote computer. • MDELETE - Deletes the specified file(s) from the remote computer • MKDIR - Creates the specified directory on the remote computer. • RMDIR - Removes the specified directory from the remote computer.
Job Card (z/OS only)	For z/OS, the job card information for the JCL statement. Example: `//File TransferJOB01 JOB (File Transfer,001),FANNY,MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY=&SYSUID,CLASS=A`
Subcommands (z/OS only)	For z/OS, any subcommands used in the JCL statement.
Transfer Type	Data format of the file being transferred. Options: • Binary • ASCII
Transfer Mode	If Transfer Protocol is FTP or FTPS; Transfer mode. Options: • Active • Passive • Extended Passive
Remote Server	Required if Transfer Protocol = FTP, SFTP or FTPS; name or IP address of the File Transfer server. This machine may or may not be the same as the Agent machine. You also can specify a non-standard FTP, SFTP, or FTPS port: port number separated from the host name with a colon: "some.server.com:2222".
FTP Credentials	Login credentials that the Agent will use to access the FTP or SFTP server machine. If the File Transfer server and Agent are running on the same machine, enter the same credentials as those you entered in the Credentials field.

FTP Credentials Variable	Indication of whether the FTP Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the FTP Credentials as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an FTP Credentials reference to using an FTP Credentials variable, you must change the **FTP Credentials Variable** field to **Yes** and specify the FTP Credentials variable in the **FTP Credentials Unresolved** field. Conversely, to change from using an FTP Credentials variable to using an FTP Credentials reference, you must change the **FTP Credentials Variable** field to **No** and specify the FTP Credentials reference in the **FTP Credentials** field.
Local Filename	Required if Transfer Type = FTP or SFTP; path and file name on the local server. That is, the "transfer from" file name.
Use Regular Expression	Enables the use of a regular expression in the Local Filename field.
Remote Filename	Required if Transfer Type = FTP or SFTP; path and file name on the remote server. That is, the "transfer to" file name.
Move	If Transfer Protocol = FTP, SFTP, or FTPS, and Command = GET, MGET, PUT, or MPUT; Modifies the behavior of GET/MGET and PUT/MPUT by deleting the source file(s) after being transferred to the destination. GET/MGET with Move enabled will delete the files from the remote FTP server; PUT/MPUT with Move enabled will delete the files from the local FTP client.
Retry Options	This section contains specifications for retrying the task.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.

Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related statistics for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

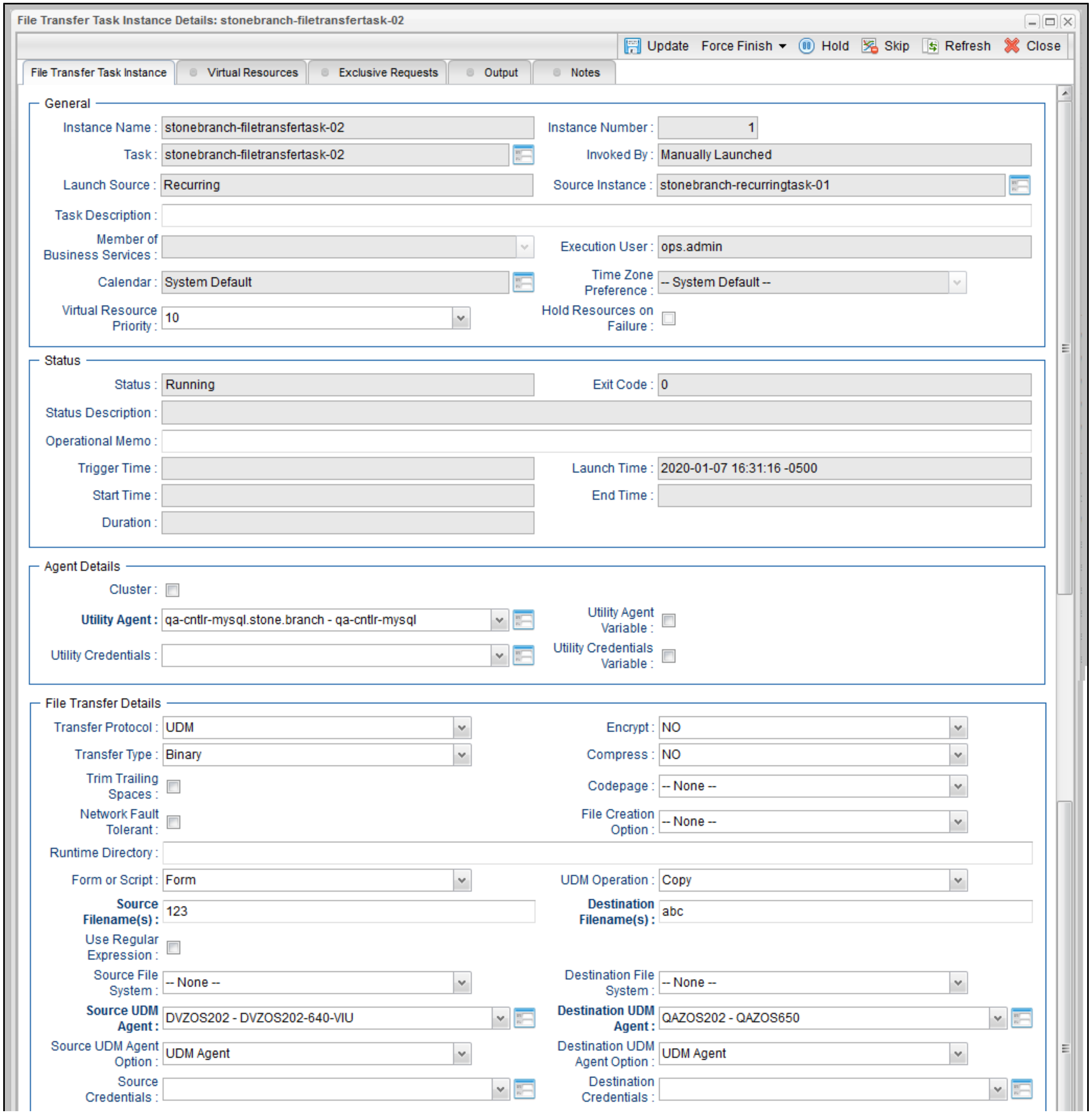
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	IfRestriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note ⚠ If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (`ops_exclusive_order`) for this task instance.
Output	Displays output generated from the process. Note ⚠ For File Transfer task instances, output always is automatically retrieved and is available from the Output tab.

Notes	Lists all notes associated with this record.

UDM File Transfer Task Instance Details

The following UDM File Transfer Task Instance Details contains information on the execution of the task shown in the UDM File Transfer Task Details.


File Transfer Task Instance Details: stonebranch-filetransfertask-02
Update
Force Finish
Hold
Skip
Refresh
Close
File Transfer Task Instance
Virtual Resources
Exclusive Requests
Output
Notes

General

Instance Name : stonebranch-filetransfertask-02
Instance Number : 1
Task : stonebranch-filetransfertask-02
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

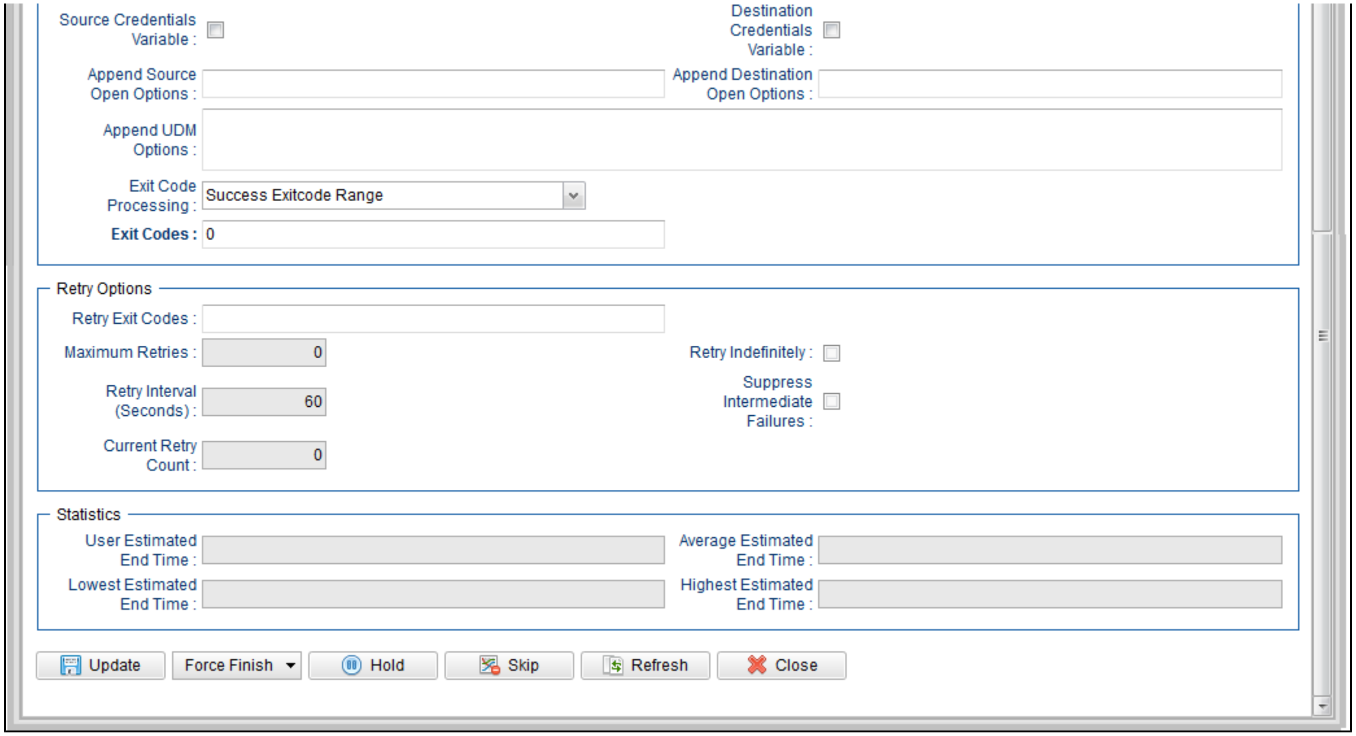
Status : Running
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-07 16:31:16 -0500
Start Time :
End Time :
Duration :

Agent Details

Cluster : ☐
Utility Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Utility Agent Variable : ☐
Utility Credentials :
Utility Credentials Variable : ☐

File Transfer Details

Transfer Protocol : UDM
Encrypt : NO
Transfer Type : Binary
Compress : NO
Trim Trailing Spaces : ☐
Codepage : -- None --
Network Fault Tolerant : ☐
File Creation Option : -- None --
Runtime Directory :
Form or Script : Form
UDM Operation : Copy
Source Filename(s) : 123
Destination Filename(s) : abc
Use Regular Expression : ☐
Source File System : -- None --
Destination File System : -- None --
Source UDM Agent : DVZOS202 - DVZOS202-640-VIU
Destination UDM Agent : QAZOS202 - QAZOS650
Source UDM Agent Option : UDM Agent
Destination UDM Agent Option : UDM Agent
Source Credentials :
Destination Credentials :



Source Credentials Variable : ☐

Destination Credentials Variable : ☐

Append Source Open Options :

Append Destination Open Options :

Append UDM Options :

Exit Code Processing : Success Exitcode Range

Exit Codes : 0

Retry Options

Retry Exit Codes :

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Current Retry Count : 0

Statistics

User Estimated End Time :

Average Estimated End Time :

Lowest Estimated End Time :

Highest Estimated End Time :

UDM File Transfer Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in UDM File Transfer Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.

Invoked by	System-supplied; how the task instance was launched. Options: - Trigger: (Trigger Name) Instance was launched by the named trigger. - Workflow: (Workflow Name) Instance was launched by the named workflow. - Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Launch Source	System-supplied; Source from which this Recurring task was launched. Options: - Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. - Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. - Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. - Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)

Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting a Utility Agent Cluster is required. If Cluster is selected, selecting a Utility Agent is not required unless Utility Agent Variable is selected.
Utility Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify a Utility Agent, you must specify a Utility Agent Cluster or Utility Cluster Broadcast.
Utility Agent Variable	If enabled, the Utility Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the **Utility Agent Variable** field to **Yes** and specify the Utility Agent variable in the **Utility Agent Unresolved** field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the **Utility Agent Variable** field to **No** and specify the Utility Agent reference in the **Utility Agent** field.

Utility Agent Cluster	If Cluster is selected; Group of Agents, one of which the Controller will choose to run this task. You can specify a Utility Agent Cluster in addition to or in place of a specific Utility Agent. If you specify a Utility Agent and a Utility Agent Cluster, the Controller first tries to run the task on the specific Utility Agent. If the Utility Agent is not available, the Controller reverts to the Utility Agent Cluster. See Agent Clusters for more information.
Utility Agent Cluster Variable	Indication of whether the Utility Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Utility Agent Cluster as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the **Utility Agent Cluster Variable** field to **Yes** and specify the Utility Agent Cluster variable in the **Utility Agent Cluster Unresolved** field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the **Utility Agent Cluster Variable** field to **No** and specify the Utility Agent Cluster reference in the **Utility Agent Cluster** field.
Utility Credentials	Login credentials that the Agent will use to access the Universal Command server machine. Required if the Agent Credentials Required Universal Controller system property is true.
Utility Credentials Variable	Indication of whether the Utility Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Utility Credentials as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Utility Credentials reference to using a Utility Credentials variable, you must change the **Utility Credentials Variable** field to **Yes** and specify the Utility Credentials variable in the **Utility Credentials Unresolved** field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the **Utility Credentials Variable** field to **No** and specify the Utility Credentials reference in the **Utility Credentials** field.
File Transfer Details	This section contains assorted detailed information about the task instance.
Transfer Protocol	Type of transfer protocol for this file transfer. Options: • FTP • SFTP • UDM • FTPS

Transfer Type	Type of data transfer. Options: • Binary • Text
Encrypt	The method of encryption that the Controller will use in the transfer. Options: • YES • NO (none) • RC4-SHA • RC4-MD5 • AES256-SHA • AES128-SHA • DES-CBC3-SHA • DES-CBC-SHA • NULL-SHA • NULL-MD5 • NULL-NULL • AES256-GCM-SHA384 • AES128-GCM-SHA256
Compress	The type of data compression used in the transfer, if any. Options: • YES • NO • ZLIB • HASP
Codepage	Options: (See Code Pages, below.)
File Creation Option	Specifies whether the transferred file should be created (new), appended, or replace any existing file. Options: • None • APPEND • NEW • REPLACE
Trim Trailing Spaces	If enabled, specifies that the Controller should trim trailing spaces from lines on a text transfer.

Network Fault Tolerant	Enable if the session is network fault tolerant.
Runtime Directory	Directory from which the application should be executed. Variables supported.
Form or Script	Form or Script for this UDM File Transfer to use.
UDM Operation	UDM Operation to be executed. Options: • Copy • Move Default is Copy.
Source Filename(s)	Required; Path and file name on the source UDM server.
Use Regular Expression	Enables the use of a regular expression in the Source Filename(s) field.
Destination Filename(s)	Required; Path and file name on the destination UDM server.
Source File System	Type of file system on the source server. Options: • None • DSN • HFS • LIB
Destination File System	Type of file system on the destination server. Options: • None • DSN • HFS • LIB
Source UDM Agent	Required; Name of the Agent resource defined in the Controller that describes the source UDM Agent machine (primary transfer server).

Destination UDM Agent	Required; Name of the Agent resource defined in the Controller that provides details about the destination UDM Agent machine (secondary transfer server).
Source UDM Agent Option	Defines how you will specify the Source UDM Agent. Options: - UDM Agent - Source Agent is an UDM Agent defined in the Controller. - UDM Agent Variable - Source Agent will be defined by setting the variable in the Source UDM Agent field. - UDM Agent Hostname - Source Agent runs on the host name specified in the Source UDM Agent field.
Destination UDM Agent Option	Defines how you will specify the Destination UDM Agent. Options: - UDM Agent - Destination Agent is an UDM Agent defined in the Controller. - UDM Agent Variable - Destination Agent will be defined by setting the variable in the Destination UDM Agent field. - UDM Agent Hostname - Destination Agent runs on the host name specified in the Destination UDM Agent field.
Script	Name of the Script to execute for this File Transfer task. Note If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.
Source Credentials	Specifies the source user ID and password (local to the host on which the server is running) under which the transfer operation is being carried out.
Destination Credentials	Specifies the destination user ID and password (local to the host on which the server is running) under which the transfer operation is being carried out.
Source Credentials Variable	Indication of whether the Source Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Source Credentials as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Source Credentials reference to using a Source Credentials variable, you must change the **Source Credentials Variable** field to **Yes** and specify the Source Credentials variable in the **Source Credentials Unresolved** field. Conversely, to change from using a Source Credentials variable to using a Source Credentials reference, you must change the **Source Credentials Variable** field to **No** and specify the Source Credentials reference in the **Source Credentials** field.

Destination Credentials Variable	Indication of whether the Destination Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Destination Credentials as a variable (checked). Use the format: `${variable name}.` The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Destination Credentials reference to using a Destination Credentials variable, you must change the **Destination Credentials Variable** field to **Yes** and specify the Destination Credentials variable in the **Destination Credentials Unresolved** field. Conversely, to change from using a Destination Credentials variable to using a Destination Credentials reference, you must change the **Destination Credentials Variable** field to **No** and specify the Destination Credentials reference in the **Destination Credentials** field.
Append Source Open Options	Any additional free form open command options for the source (primary) transfer server.
Append Destination Open Option	Any additional free form open command options for the destination (secondary) transfer server.
Append UDM Options	Any additional free-form Universal Data Mover command options.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field.
Output Type-Exit Code	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File

Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File-Exit Codes	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Retry Options	This section contains specifications for retrying the task.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.

Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day
	Do not advance day.
	- Next Day
	Advance to the next day.
	- Next Business Day
	Advance to the next business day.
	- Sunday
	If today is not Sunday, advance to next Sunday.
	- Monday
	If today is not Monday, advance to next Monday.
	- Tuesday
	If today is not Tuesday, advance to next Tuesday.
	- Wednesday
	If today is not Wednesday, advance to next Wednesday.
	- Thursday
	If today is not Thursday, advance to next Thursday.
	- Friday
	If today is not Friday, advance to next Friday.
	- Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.

Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instances of this task.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.
Output	Displays output generated from the process. Note For File Transfer task instances, output always is automatically retrieved and is available from the Output tab.

Notes	Lists all notes associated with this record.

Output Redirection

An Agent processes File Transfer (UDM), Universal Command, and SAP tasks differently than Windows and Linux/Unix tasks. File Transfer (UDM), Universal Command, and SAP command lines are sent to the user process via standard input, so any redirection operators entered as task command input are not processed as expected.

If you want to direct output from a File Transfer (UDM) task to your file system, the **-uagstdio** command option lets you specify the same output redirection commands that are available for Windows and Linux /Unix tasks. UAG will apply the user-specified value for **-uagstdio** directly to the command image.

The I/O redirection commands that you can use with **-uagstdio** are dependent on the OS/command shell. You should be able to set up any redirection that the OS/command shell supports (just as with Windows and Linux/Unix tasks).

The syntax of **-uagstdio** is similar to Universal Data Mover, Universal Command, and Universal Connector command line options; option followed by value.

For a File Transfer (UDM) task, you can specify **uagstdio** in the following field:

- Append UDM Options

-uagstdio Examples

```
-uagstdio >C:\UDMOUT\udm.out
```

If the **-uagstdio** value contains spaces, it must be enclose in double quotation marks ("):

```
-uagstdio ">C:\UDMOUT\udm.out 2>C:\UDMOUT\udm.err"
```

If the quoted value itself requires double quotation marks, they must be doubled (""):

```
-uagstdio ">C:\tmp\""udm output""\udm.out 2>C:\tmp\""udm output""\udm.err"
```

Specifying When a Task Runs

You can run the task as part of a workflow, specify triggers that run the task automatically based on times or events, or run the task manually.

Running a File Transfer Task

You can run a File Transfer task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the File Transfer tasks list or File Transfer Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Code Pages

The following table identifies all supported code pages for a UDM File Transfer task.

ISO8859-1	op437	IBM Portugal 037
ISO8859-2	op737	IBM German 273
ISO8859-3	op775	IBM Danish and Norwegian 277
ISO8859-4	op850	IBM Sweden and Finland 278
ISO8859-5	op852	IBM Italian 280
ISO8859-6	op855	IBM Spanish 284
ISO8859-7	op857	IBM International 500
ISO8859-8	op860	IBM Greek 875
ISO8859-9	op861	IBM Latin-1 1047
ISO8859-10	cp862	IBM Portugal 1140
ISO8859-13	cp863	IBM German 1141
ISO8859-14	cp864	IBM Danish 1142
ISO8859-15	cp865	IBM Finish 1143
	cp866	IBM Italian 1144
	cp869	IBM Spanish 1145
	cp874	IBM UK 1146
	cp1250	IBM Swiss 1148
	cp1251	IBM Greek 4971
	cp1252	

	cp1253	
	cp1254	
	cp1255	
	cp1256	
	cp1257	
	cp1258	

Manual Task

- Overview
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    - Manual Task Instance Details Field Descriptions
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Overview

Manual tasks are used to create a pause in a Workflow during which the user must take some action.

The processing of a Manual task within a Workflow is described here:

Step 1	While its upstream tasks are running, a Manual task instance remains in WAITING status. When the Manual task instance launches, it goes immediately into ACTION REQUIRED status, meaning you must perform some manual activity. Universal Controller also sets the **Started Time** in the Manual task instance to the time that the task instance went into the ACTION REQUIRED status.
Step 2	Optionally, you can re-set the **Started Time** of the Manual task by issuing the **Set Started** command. Either: 1. On the Activity Monitor, right-click the Manual task and select **Set Started**. 2. On the Workflow Monitor, right-click the Manual task and select **Commands > Set Started**.
Step 3	When you have completed the activities called for in the Manual task, you must indicate that the task is completed and that the Workflow can continue. Either: 1. On the Activity Monitor, right-click the Manual task and select **Set Completed**. 2. On the Workflow Monitor, right-click the Manual task and select **Commands > Set Completed**.
Step 4	The Manual task goes into SUCCESS status, the End Time is set, and the Workflow continues. If the Manual task is not completed but you still want the Workflow to continue, select **Force Finish**.

Note

⚠ You also can set a Manual task to STARTED or COMPLETED status from the Command Line Interface (CLI).

Built-In Variables

The following built-in variables can be used in a Manual task to pass data where appropriate:

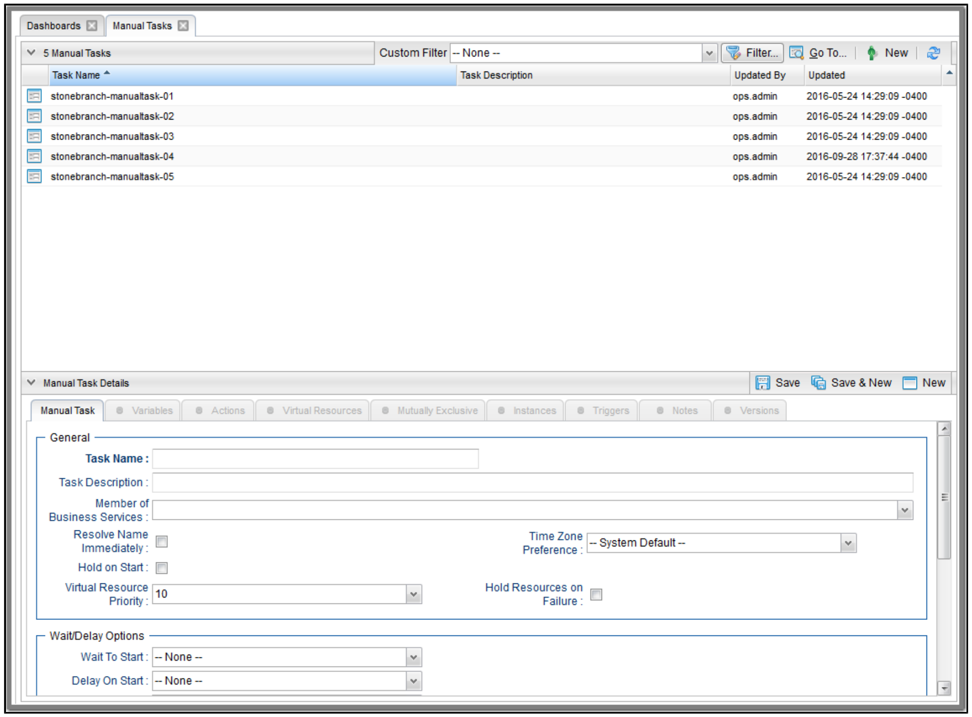
- Task Instance variables

Creating a Manual Task

Step 1

From the Automation Center navigation pane, select **Tasks > Manual Tasks**. The Manual Tasks list displays a list of all currently defined Manual tasks.

Below the list, Manual Task Details for a new Manual task displays.


Dashboards
Manual Tasks
5 Manual Tasks
Filter...
Go To...
New
Manual Task Details
Save
Save & New
New
Manual Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Wait/Delay Options

Custom Filter: -- None --

Task Name	Task Description	Updated By	Updated
stonebranch-manualtask-01		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-manualtask-02		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-manualtask-03		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-manualtask-04		ops.admin	2016-09-28 17:37:44 -0400
stonebranch-manualtask-05		ops.admin	2016-05-24 14:29:09 -0400

Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐
Wait To Start : -- None --
Delay On Start : -- None --

Step 2

Enter/select Details for a new Manual task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

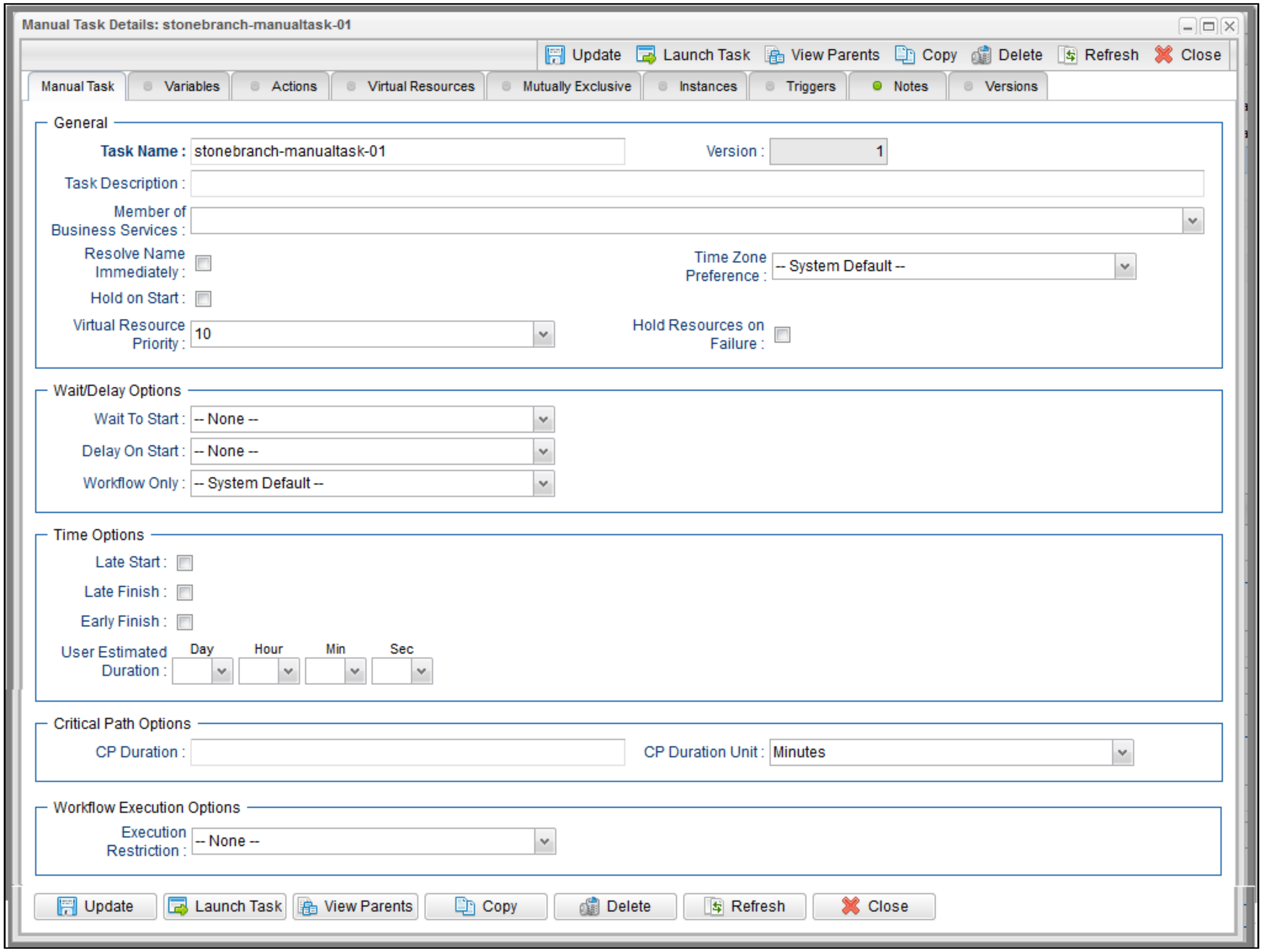
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Manual Task Details

The following Manual Task Details is for an existing Manual task.

Depending on the values that you enter / select for these fields, and whether or not the Manual task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Manual Task Details.


Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Manual Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
Day
Hour
Min
Sec

Manual Task Details: stonebranch-manualtask-01

General

Task Name : stonebranch-manualtask-01
Version : 1
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Wait/Delay Options

Wait To Start : -- None --
Delay On Start : -- None --
Workflow Only : -- System Default --

Time Options

Late Start : ☐
Late Finish : ☐
Early Finish : ☐
User Estimated Duration :

Critical Path Options

CP Duration :
CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

Manual Task Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Manual Task Details.

Field Name	Description
General	This section contains general information about the task.

Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.

Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day
	Do not advance day.
	- Next Day
	Advance to the next day.
	- Next Business Day
	Advance to the next business day.
	- Sunday
	If today is not Sunday, advance to next Sunday.
	- Monday
	If today is not Monday, advance to next Monday.
	- Tuesday
	If today is not Tuesday, advance to next Tuesday.
	- Wednesday
	If today is not Wednesday, advance to next Wednesday.
	- Thursday
	If today is not Thursday, advance to next Thursday.
	- Friday
	If today is not Friday, advance to next Friday.
	- Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.

Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	IfLate Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note You cannot delete a task if it is either: - Specified in an enabled Trigger. - The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

<table>
<tr><td>Actions</td><td>
<p>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.</p>
<p>Events are:</p>

Task instance status
Exit codes
Late start
Late finish
Early finish

<p>Actions are:</p>
<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table>
</td></tr>
<tr><td>Virtual Resources</td><td>
<p>Lists all Virtual Resources to which this task is assigned.</p>
<p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>
</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

Viewing a Manual Task Instance

When a Manual task is launched, the Controller creates a task instance record of that task.

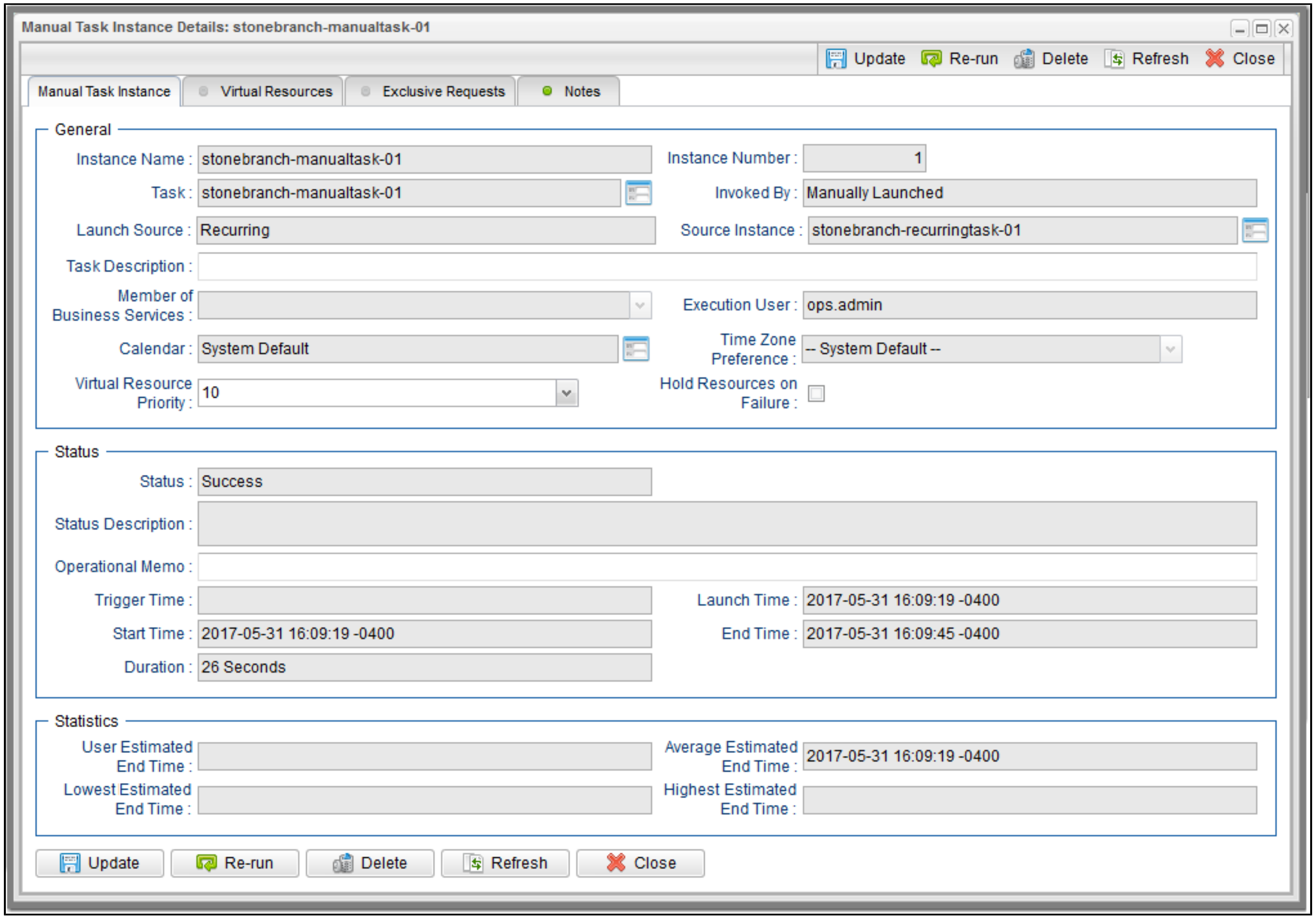
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Manual Task Details for that task
- Activity Monitor
- Task Instances list

Manual Task Instance Details

The following Manual Task Instance Details contains information on the execution of the task shown in the Manual Task Details.


Manual Task Instance Details: stonebranch-manualtask-01
Update
Re-run
Delete
Refresh
Close
Manual Task Instance
Virtual Resources
Exclusive Requests
Notes

General

Instance Name : stonebranch-manualtask-01
Instance Number : 1
Task : stonebranch-manualtask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Success
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2017-05-31 16:09:19 -0400
Start Time : 2017-05-31 16:09:19 -0400
End Time : 2017-05-31 16:09:45 -0400
Duration : 26 Seconds

Statistics

User Estimated End Time :
Average Estimated End Time : 2017-05-31 16:09:19 -0400
Lowest Estimated End Time :
Highest Estimated End Time :

Update
Re-run
Delete
Refresh
Close

Manual Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Manual Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.

Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Invoked by	System-supplied; how the task instance was launched. Options: - Trigger: (Trigger Name) Instance was launched by the named trigger. - Workflow: (Workflow Name) Instance was launched by the named workflow. - Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Launch Source	System-supplied; Source from which this Recurring task was launched. Options: - Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. - Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. - Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. - Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.

Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.

Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds

Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.

Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: - – None – - Duration - Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Set Started	Sets the task instance to the Started status.
Set Completed	Sets the task instance to the Success status.
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.

Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.
Notes	Lists all notes associated with this record.

Running a Manual Task

You can run a Manual task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the Manual Tasks list or Manual Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Timer Task

- Overview
- Built-In Variables
- Creating a Timer Task
    - Timer Task Details
    - Timer Task Details Field Descriptions
- Viewing a Timer Task Instance
    - Timer Task Instance Details
    - Timer Task Instance Details Field Descriptions
- Running a Timer Task
- Monitoring Task Execution

Overview

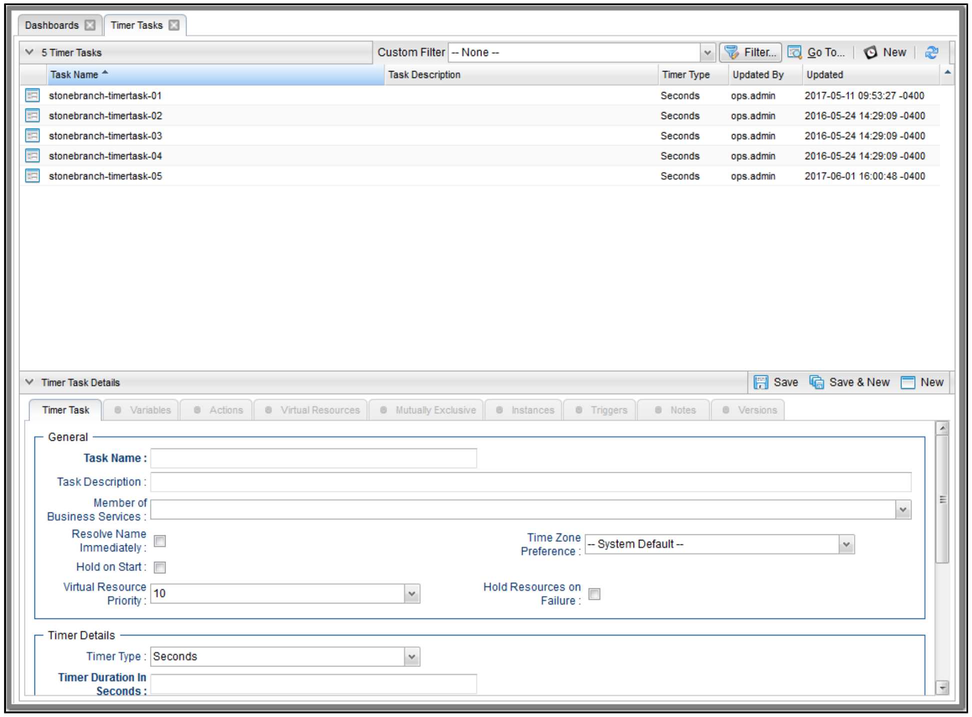
The Timer task allows you to execute a timer command for a specified period of time or until a specific time. This task is helpful, for example, if you need to impose a pause in the processing of a Workflow.

Built-In Variables

The following built-in variables can be used in a Manual task to pass data where appropriate:

- Task Instance variables

Creating a Timer Task

Step 1	From the Automation Center navigation pane, select **Tasks > Timer Tasks**. The Timer Tasks list displays a list of all currently defined Timer tasks. Below the list, Timer Task Details for a new Timer task displays. 
Step 2	Enter/select Details for a new Timer task, using the field descriptions below as a guide. • Required fields display in **boldface**. • Default values for fields, if available, display automatically. To display more of the Details fields on the screen, you can either: • Use the scroll bar. • Temporarily hide the list above the Details. • Click the **New** button above the list to display a pop-up version of the Details.
Step 3	Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

5 Timer Tasks

Custom Filter: -- None --

Task Name	Task Description	Timer Type	Updated By	Updated
stonebranch-timertask-01		Seconds	ops.admin	2017-05-11 09:53:27 -0400
stonebranch-timertask-02		Seconds	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-timertask-03		Seconds	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-timertask-04		Seconds	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-timertask-05		Seconds	ops.admin	2017-06-01 16:00:48 -0400

Timer Task Details

General

Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Timer Details

Timer Type : Seconds
Timer Duration In Seconds :

Note

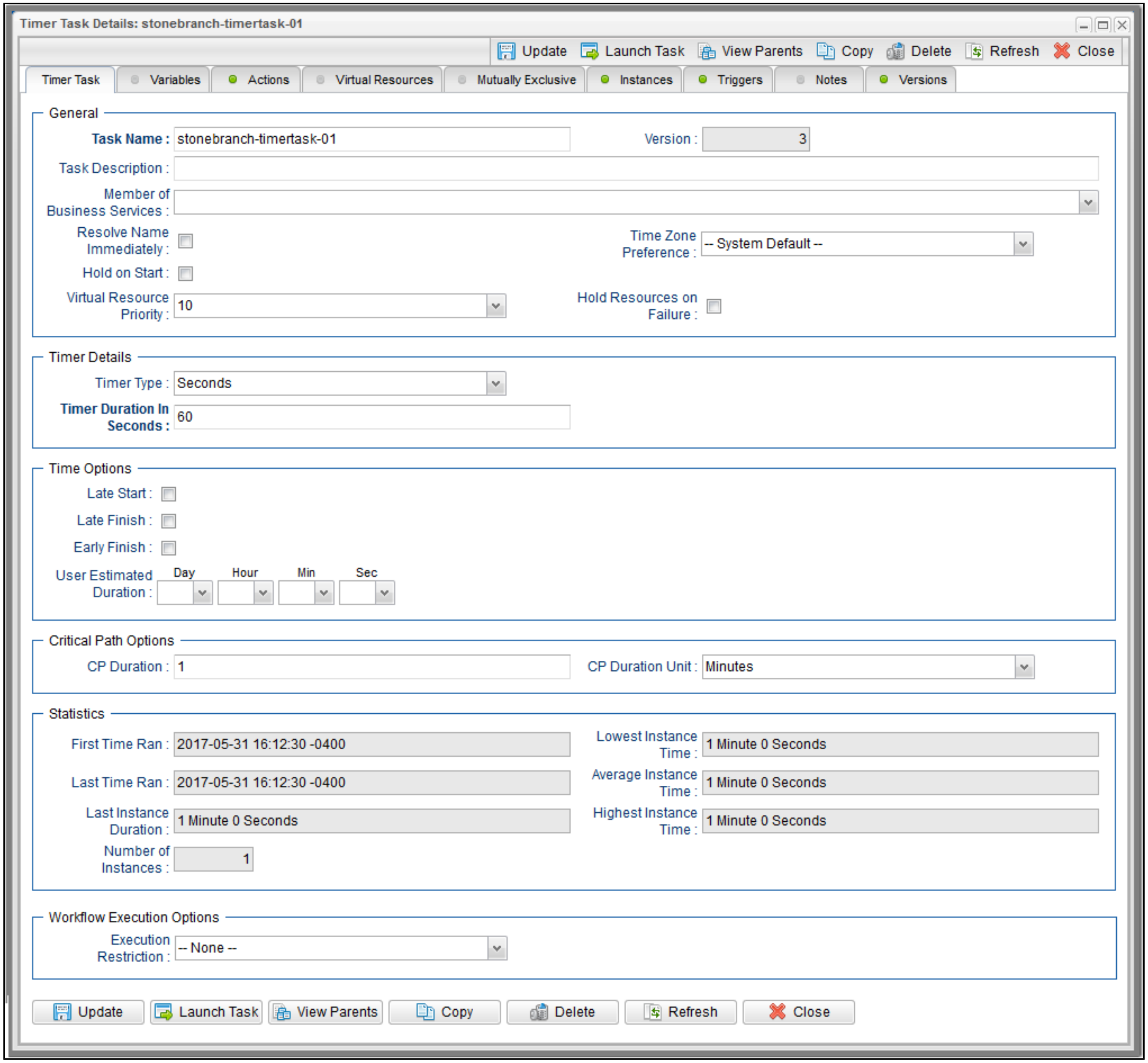
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Timer Task Details

The following Linux/Unix Task Details is for an existing Linux/Unix task.

Depending on the values that you enter / select for these fields, and whether or not the Timer task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Timer Task Details.


Timer Task Details: stonebranch-timertask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Timer Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

General

Task Name : stonebranch-timertask-01
Version : 3
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Timer Details

Timer Type : Seconds
Timer Duration In Seconds : 60

Time Options

Late Start : ☐
Late Finish : ☐
Early Finish : ☐
User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration : 1
CP Duration Unit : Minutes

Statistics

First Time Ran : 2017-05-31 16:12:30 -0400
Lowest Instance Time : 1 Minute 0 Seconds
Last Time Ran : 2017-05-31 16:12:30 -0400
Average Instance Time : 1 Minute 0 Seconds
Last Instance Duration : 1 Minute 0 Seconds
Highest Instance Time : 1 Minute 0 Seconds
Number of Instances : 1

Workflow Execution Options

Execution Restriction : -- None --

Timer Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Timer Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.

Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Timer Details	This section contains assorted detailed information about the task.
Timer Type	User-supplied; the type of Timer command you want to execute. Options: - Time Use the Timer Time field (and, optionally, the Timer Day Constraint field) to specify the time of day that you want the Timer task to be completed. - Relative Time Use the Timer Time field (and, optionally, the Timer Day Constraint field) to specify time of day, relative to the Trigger/Launch Time, that you want the Timer task to be completed. - Duration Use the Timer Duration field to specify the number of days, hours, minutes, and/or seconds that the Timer task will run. - Seconds Use the Timer Duration in Seconds field to specify the number of seconds that the Timer task will run.
Timer Time (HH:MM)	If Timer Type = Time; Time of day (in 24-hour time) that the Timer task should go to a completed status.

Timer Day Constraint	If Timer Type = Time or Relative Time; Specification for whether or not to advance the timer to another day.
	Valid values:
	- -- None --
	  - If Timer Type = Time; Advance to the next day if calculated wait time is before the current time.
	  - If Timer Type = Relative Time; Advance to the next day if calculated wait time is before the Trigger/Launch Time.
	- Same Day
	Do not advance day.
	- Next Day
	Advance to the next day.
	- Next Business Day
	Advance to the next business day.
	- Sunday
	If today is not Sunday, advance to next Sunday.
	- Monday
	If today is not Monday, advance to next Monday.
	- Tuesday
	If today is not Tuesday, advance to next Tuesday.
	- Wednesday
	If today is not Wednesday, advance to next Wednesday.
	- Thursday
	If today is not Thursday, advance to next Thursday.
	- Friday
	If today is not Friday, advance to next Friday.
	- Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Timer Duration	If Timer Type = Duration; Number of days, hours, minutes, and/or seconds the Timer task will run.
Timer Duration in Seconds	If Timer Type = Seconds; Number of seconds the Timer task will run.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.

Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.

Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Critical Path-related specifications for the task.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note You cannot delete a task if it is either: - Specified in an enabled Trigger. - The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

Actions	Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task. Events are: • Task instance status • Exit codes • Late start • Late finish • Early finish Actions are: **Abort Action**: Abort the task if certain events occur. For details, see Abort Actions. **Email Notification**: Send an email if certain events occur. For details, see Email Notification Actions. **Set Variable**: Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow. **SNMP Notification**: Send an email if certain events occur. For details, see SNMP Notification Actions. **System Operation**: Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.
Instances	Lists all instances of the task.
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.
Notes	Lists all notes associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning.

Viewing a Timer Task Instance

When a Timer task is launched, the Controller creates a task instance record of that task.

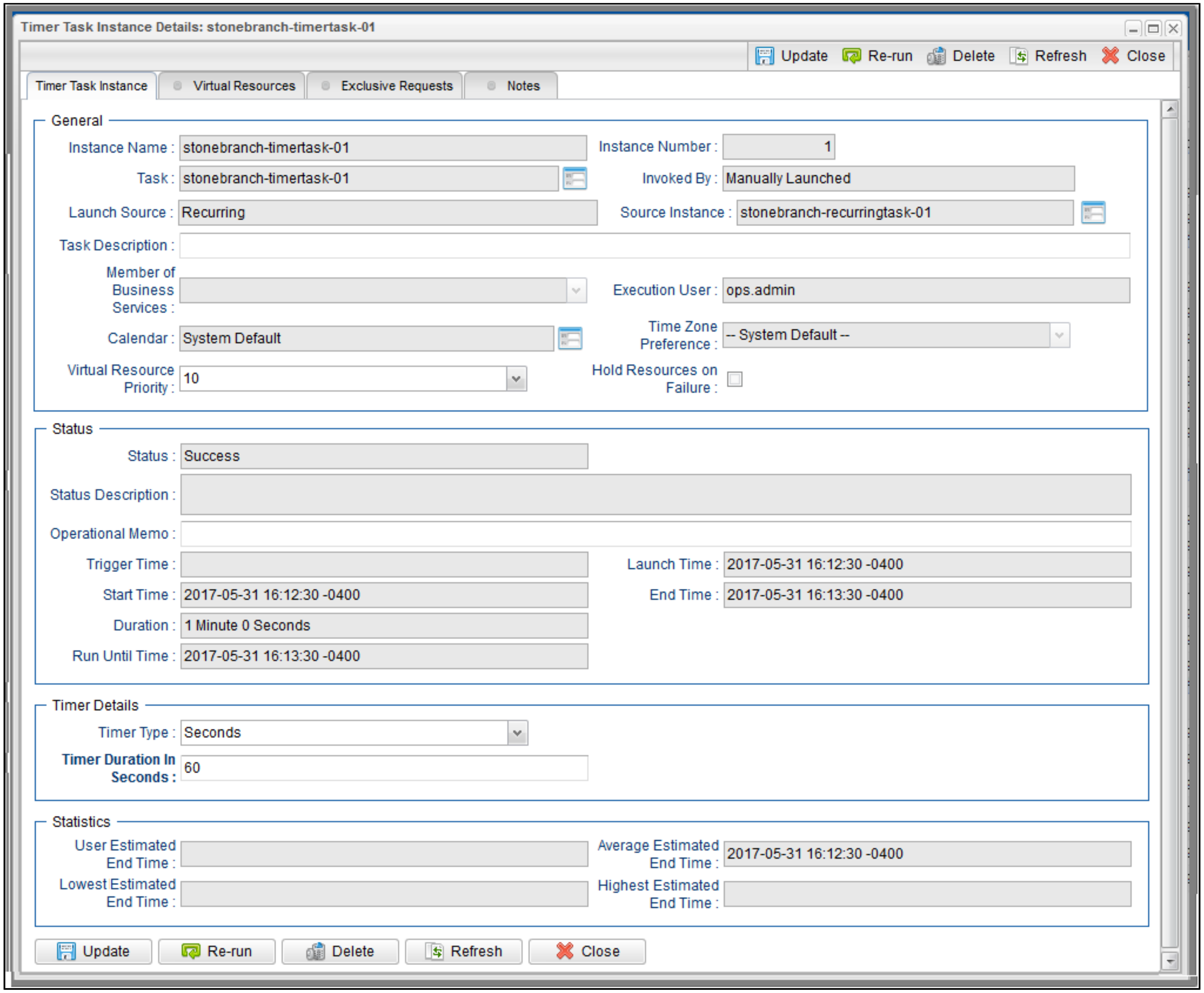
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Timer Task Details for that task
- Activity list
- Task Instances list

Timer Task Instance Details

The following Timer Task Instance Details contains information on the execution of the task shown in the Timer Task Details.


Timer Task Instance Details: stonebranch-timertask-01
Update
Re-run
Delete
Refresh
Close
Timer Task Instance
Virtual Resources
Exclusive Requests
Notes

General

Instance Name : stonebranch-timertask-01
Instance Number : 1
Task : stonebranch-timertask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Success
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2017-05-31 16:12:30 -0400
Start Time : 2017-05-31 16:12:30 -0400
End Time : 2017-05-31 16:13:30 -0400
Duration : 1 Minute 0 Seconds
Run Until Time : 2017-05-31 16:13:30 -0400

Timer Details

Timer Type : Seconds
Timer Duration In Seconds : 60

Statistics

User Estimated End Time :
Average Estimated End Time : 2017-05-31 16:12:30 -0400
Lowest Estimated End Time :
Highest Estimated End Time :

Update
Re-run
Delete
Refresh
Close

Timer Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Timer Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Launch Source	System-supplied; Source from which this Recurring task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.

Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Run Until Time	Calculated run time.
CPU Time	System-supplied; amount of CPU time the task took to run.
Timer Details	This section contains assorted detailed information about the task instance.
Timer Type	User-supplied; the type of Timer command you want to execute. Options: • Time Use the Timer Time field (and, optionally, the Timer Day Constraint field) to specify the time of day that you want the Timer task to be completed. • Relative Time Use the Timer Time field (and, optionally, the Timer Day Constraint field) to specify time of day, relative to the Trigger/Launch Time, that you want the Timer task to be completed. • Duration Use the Timer Duration field to specify the number of days, hours, minutes, and/or seconds that the Timer task will run. • Seconds Use the Timer Duration in Seconds field to specify the number of seconds that the Timer task will run.
Timer Time (HH:MM)	If Timer Type = Time; Time of day (in 24-hour time) that the Timer task should go to a completed status.

Timer Day Constraint	If Timer Type = Time or Relative Time; Specification for whether or not to advance the timer to another day.
	Valid values:
	• -- None --
	  ◦ If Timer Type = Time; Advance to the next day if calculated wait time is before the current time.
	  ◦ If Timer Type = Relative Time; Advance to the next day if calculated wait time is before the Trigger/Launch Time.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Timer Duration	If Timer Type = Duration; Number of days, hours, minutes, and/or seconds the Timer task will run.
Timer Duration in Seconds	If Timer Type = Seconds; Number of seconds the Timer task will run.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.

Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.

Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.
Notes	Lists all notes associated with this record.

Running a Timer Task

You can run a Timer task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the Timer tasks list or Timer Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

SQL Task

- Overview
- Built-In Variables
- Creating a SQL Task
    - SQL Task Details
    - SQL Task Details Field Descriptions
- Viewing a SQL Task Instance
    - SQL Task Instance Details
    - SQL Task Instance Details Field Descriptions
- Running a SQL Task
- Monitoring Task Execution

Overview

The SQL task allows you to execute one or a series of SQL statements against the database specified in the task.

Note

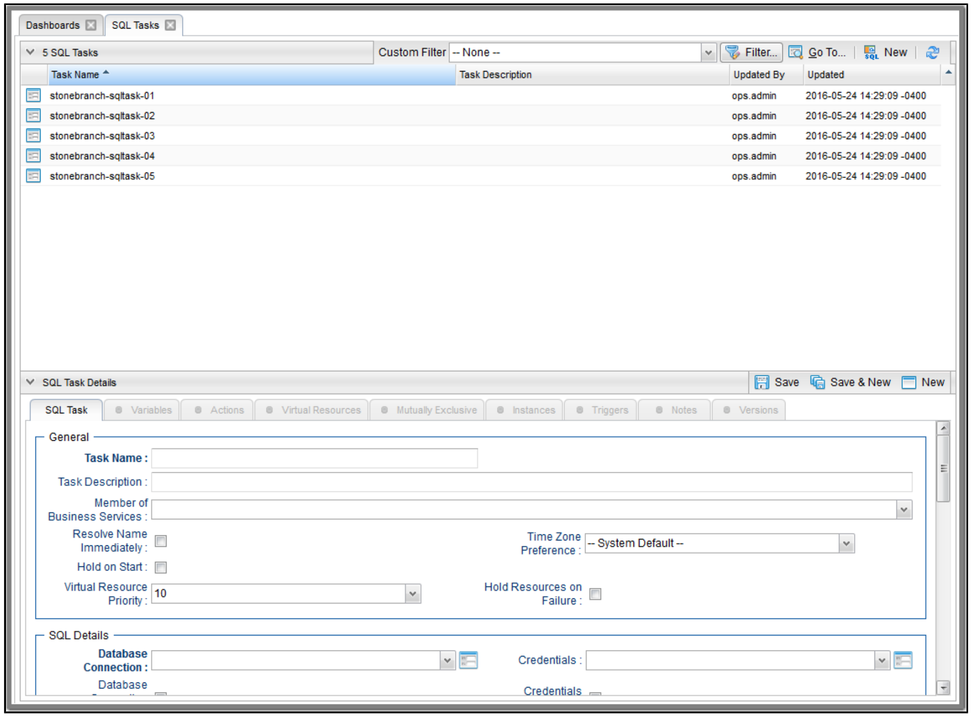
Before you can run a SQL task, you first must create a Database Connection, which defines the information needed to locate and access the database.

Built-In Variables

The following built-in variables can be used in a SQL task to pass data where appropriate:

- Task Instance variables
- SQL Task Instance variables

Creating a SQL Task

<table>
<tr>
<td>Step 1</td>
<td>
<p>From the Automation Center navigation pane, select Tasks > SQL Tasks. The SQL Tasks list displays a list of all currently defined SQL tasks.</p>
<p>Below the list, SQL Task Details for a new SQL task displays.</p>


<p>Custom Filter -- None --</p>
<table>
<tr><th>Task Name</th><th>Task Description</th><th>Updated By</th><th>Updated</th></tr>
<tr><td>stonebranch-sqltask-01</td><td></td><td>ops.admin</td><td>2016-05-24 14:29:09 -0400</td></tr>
<tr><td>stonebranch-sqltask-02</td><td></td><td>ops.admin</td><td>2016-05-24 14:29:09 -0400</td></tr>
<tr><td>stonebranch-sqltask-03</td><td></td><td>ops.admin</td><td>2016-05-24 14:29:09 -0400</td></tr>
<tr><td>stonebranch-sqltask-04</td><td></td><td>ops.admin</td><td>2016-05-24 14:29:09 -0400</td></tr>
<tr><td>stonebranch-sqltask-05</td><td></td><td>ops.admin</td><td>2016-05-24 14:29:09 -0400</td></tr>
</table>
<p>General
Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐</p>
<p>SQL Details
Database Connection :
Credentials :
Database
Credentials</p>
</td>
</tr>
<tr>
<td>Step 2</td>
<td>
<p>Enter/select Details for a new SQL task, using the field descriptions below as a guide.</p>

Required fields display in boldface.
Default values for fields, if available, display automatically.

<p>To display more of the Details fields on the screen, you can either:</p>

Use the scroll bar.
Temporarily hide the list above the Details.
Click the New button above the list to display a pop-up version of the Details.

</td>
</tr>
<tr>
<td>Step 3</td>
<td>Click a Save button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.</td>
</tr>
</table>

Note

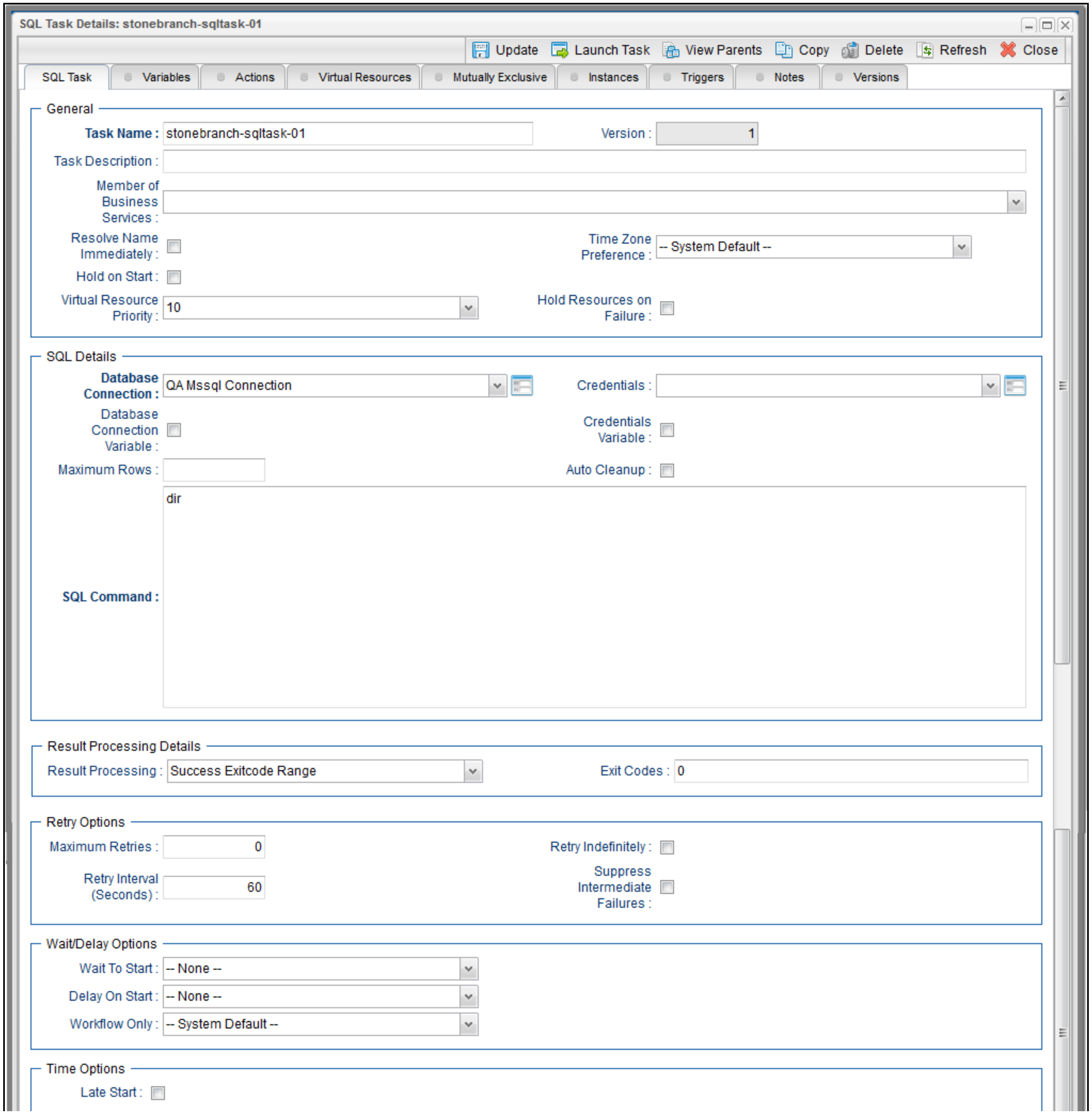
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

SQL Task Details

The following SQL Task Details is for an existing SQL task.

Depending on the values that you enter / select for these fields, and whether or not the SQL task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the SQL Task Details.


SQL Task Details: stonebranch-sqltask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
SQL Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

General

Task Name : stonebranch-sqltask-01
Version : 1
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

SQL Details

Database Connection : QA Mssql Connection
Credentials :
Database Connection Variable : ☐
Credentials Variable : ☐
Maximum Rows :
Auto Cleanup : ☐
SQL Command : dir

Result Processing Details

Result Processing : Success Exitcode Range
Exit Codes : 0

Retry Options

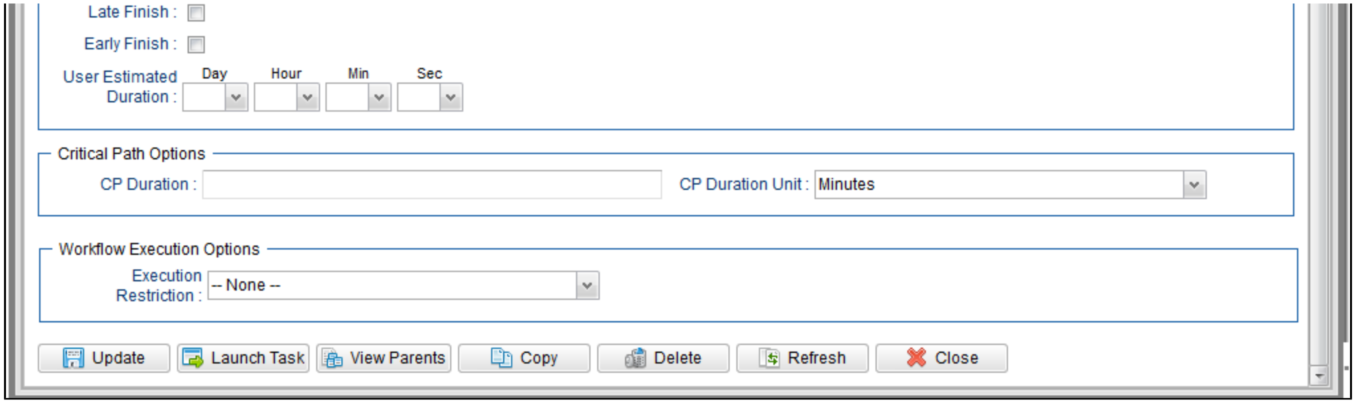
Maximum Retries : 0
Retry Indefinitely : ☐
Retry Interval (Seconds) : 60
Suppress Intermediate Failures : ☐

Wait/Delay Options

Wait To Start : -- None --
Delay On Start : -- None --
Workflow Only : -- System Default --

Time Options

Late Start : ☐


Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

SQL Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the SQL Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: - – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. - Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. - Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
SQL Details	This section contains assorted detailed information about the task.
Database Connection	Name of the Universal Controller Database Connection that defines the database. Select a database from the drop-down list or click the icon to create a new database connection.
Database Connection Variable	Indication of whether the Database Connection field is a reference field for selecting a specific Database Connection (unchecked) or a text field for specifying the Database Connection as a variable (checked). Use the format: ${variable name} . The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Database Connection reference to using a Database Connection variable, you must change the **Database Connection Variable** field to **Yes** and specify the Database Connection variable in the **Database Connection Unresolved** field. Conversely, to change from using a Database Connection variable to using a Database Connection reference, you must change the **Database Connection Variable** field to **No** and specify the Database Connection reference in the **Database Connection** field.

Credentials	Credentials that specify the user and password for connecting to the database. These Credentials override any Credentials specified on the Database Connection. If Credentials are not specified in the Database Connection, you must specify them in the task.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Maximum Rows	If necessary, specifies a limit to the number of rows you want returned by the SQL/Stored Procedure statement. This value overrides any value you specify in the database connection. (A default limit can be specified by the SQL/Stored Procedure Maximum Rows Universal Controller system property.) If you set Maximum Rows to 0, no content from any of the ResultSets will be retrieved (the next() method on ResultSet will not be called). Each ResultSet will be closed, but no data or rows accessed.
Auto Cleanup	When data is retrieved as the result of a SQL task, the data is written into a database table. If Auto Cleanup is enabled, the data is discarded upon the successful completion of the task (or workflow if the task is contained within a workflow).
SQL Command	SQL command being executed against the database. Variables supported.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Result Processing	Specifies how the Controller should determine whether the SQL command failed or completed successfully. Options: • Skip Result Processing • Success Exitcode Range - The SQL command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range - The SQL command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Result Set Contains - The SQL command is considered completed successfully depending on the value in the first row of a specific database column (see Column Name, Operator, and Value fields). • Failure Result Set Contains - The SQL command is considered failed depending on the value in the first row of a specific database column (see Column Name, Operator, and Value fields).

Exit Codes	Required if Result Processing = Success Exitcode Range or Failure Exitcode Range. Specifies the range. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30.
Column Name	Required if Result Processing = Success Result Set Contains or Failure Result Set Contains. Specifies the name of a database column that is being checked for a specific value.
Operator	Operator being used for the comparison. Options: =, !=, >, >=, <, <=, regex. Note For operators >, >=, <, and <=, if the values being compared are whole numbers or decimal numbers between -9223372036854775808 and 9223372036854775807, they will be compared as numbers; otherwise, they will be compared as text lexicographically.
Value	Value being compared, using the operator specified.
Retry Options	This section contains specifications for retrying the task.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.

Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day
	Do not advance day.
	- Next Day
	Advance to the next day.
	- Next Business Day
	Advance to the next business day.
	- Sunday
	If today is not Sunday, advance to next Sunday.
	- Monday
	If today is not Monday, advance to next Monday.
	- Tuesday
	If today is not Tuesday, advance to next Tuesday.
	- Wednesday
	If today is not Wednesday, advance to next Wednesday.
	- Thursday
	If today is not Thursday, advance to next Thursday.
	- Friday
	If today is not Friday, advance to next Friday.
	- Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.

Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: - – None – - Duration - Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: - - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) - Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. - No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note ⚠ You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

<table>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.
Events are:
- Task instance status
- Exit codes
- Late start
- Late finish
- Early finish
Actions are:
<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table>
</td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.
If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

Viewing a SQL Task Instance

When a SQL task is launched, the Controller creates a task instance record of that task.

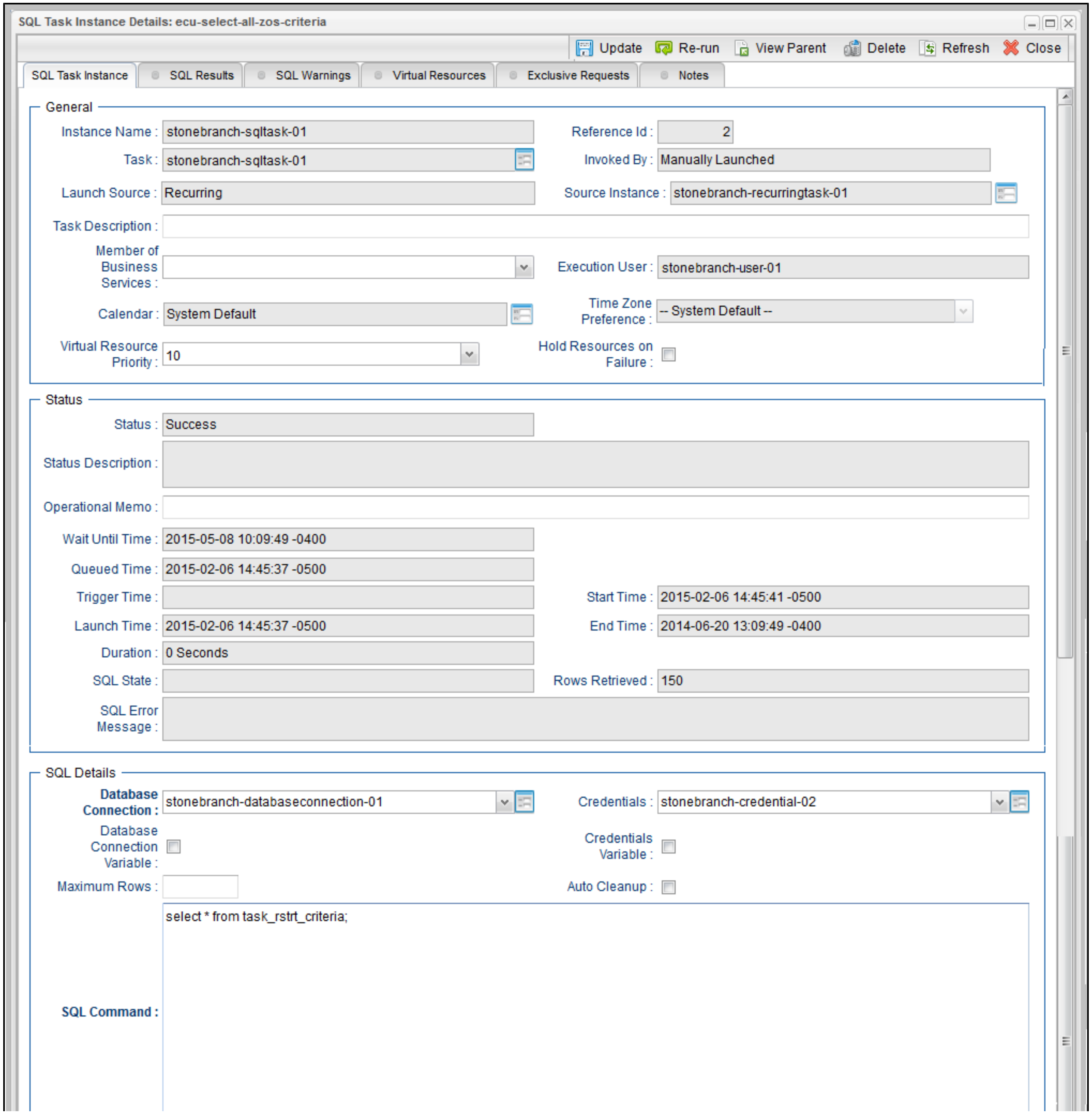
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the SQL Task Details for that task
- Activity Monitor
- Task Instances list

SQL Task Instance Details

The following SQL Task Instance Details contains information on the execution of a SQL task.


SQL Task Instance Details: ecu-select-all-zos-criteria
Update
Re-run
View Parent
Delete
Refresh
Close
SQL Task Instance
SQL Results
SQL Warnings
Virtual Resources
Exclusive Requests
Notes

General

Instance Name : stonebranch-sqltask-01
Reference Id : 2
Task : stonebranch-sqltask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : stonebranch-user-01
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

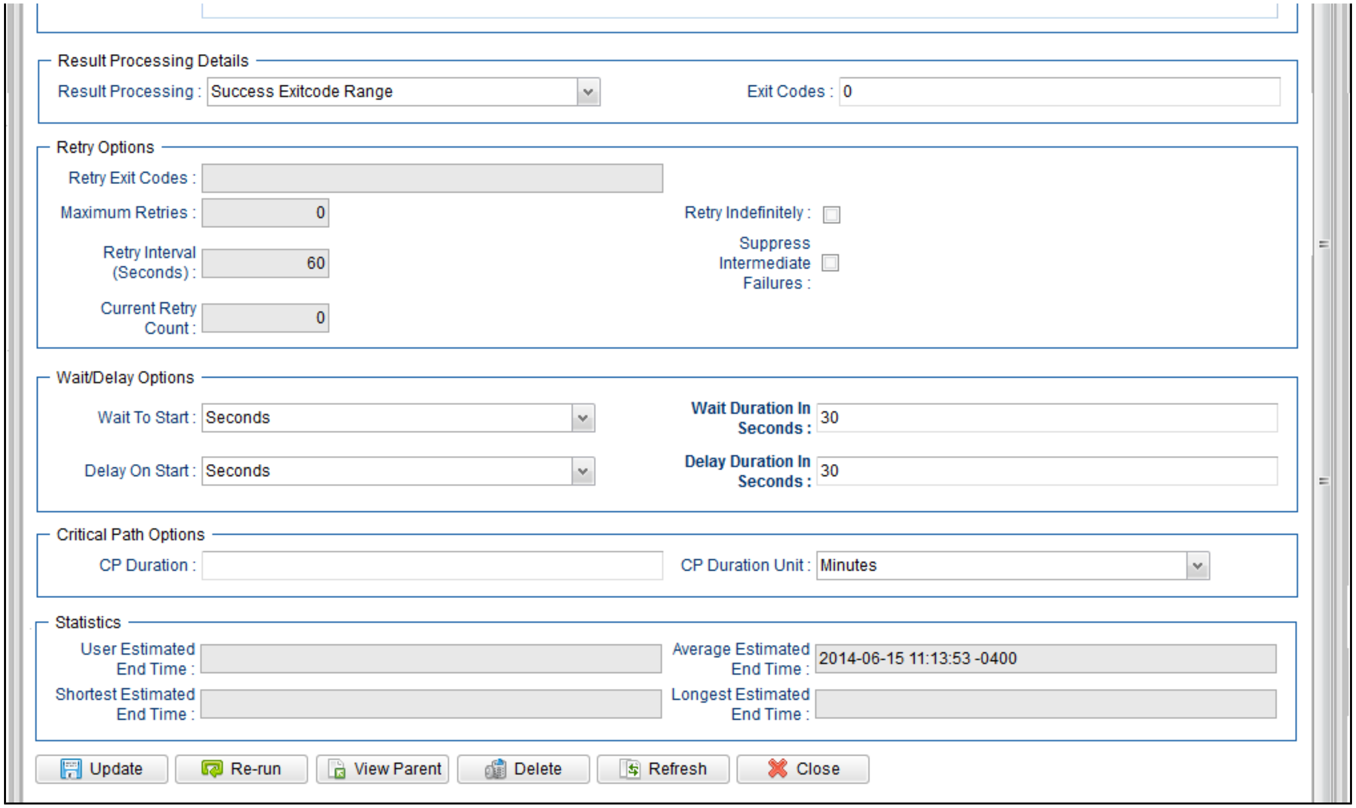
Status

Status : Success
Status Description :
Operational Memo :
Wait Until Time : 2015-05-08 10:09:49 -0400
Queued Time : 2015-02-06 14:45:37 -0500
Trigger Time :
Start Time : 2015-02-06 14:45:41 -0500
Launch Time : 2015-02-06 14:45:37 -0500
End Time : 2014-06-20 13:09:49 -0400
Duration : 0 Seconds
SQL State :
Rows Retrieved : 150
SQL Error Message :

SQL Details

Database Connection : stonebranch-databaseconnection-01
Credentials : stonebranch-credential-02
Database Connection Variable : ☐
Credentials Variable : ☐
Maximum Rows :
Auto Cleanup : ☐
SQL Command :

```
select * from task_rstrt_criteria;
```



Result Processing Details

Result Processing : Success Exitcode Range

Exit Codes : 0

Retry Options

Retry Exit Codes :

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Current Retry Count : 0

Wait/Delay Options

Wait To Start : Seconds

Wait Duration In Seconds : 30

Delay On Start : Seconds

Delay Duration In Seconds : 30

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Statistics

User Estimated End Time :

Average Estimated End Time : 2014-06-15 11:13:53 -0400

Shortest Estimated End Time :

Longest Estimated End Time :

SQL Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the SQL Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.

Invoked by	System-supplied; how the task instance was launched. Options: - Trigger: (Trigger Name) Instance was launched by the named trigger. - Workflow: (Workflow Name) Instance was launched by the named workflow. - Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Launch Source	System-supplied; Source from which this Recurring task was launched. Options: - Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. - Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. - Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. - Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)

Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
SQL State	System-supplied; resolves to a return code that indicates the outcome of the most recently executed SQL statement.
Rows Retrieved	System-supplied; number of rows retrieved by the SQL procedure.
SQL Error Message	System-supplied; any error messages returned by the SQL procedure.
SQL Details	This section contains assorted detailed information about the task instance.
Database Connection	Name of the Universal Controller Database Connection that defines the database. Select a database from the drop-down list or click the icon to create a new database connection.

Database Connection Variable	Indication of whether the Database Connection field is a reference field for selecting a specific Database Connection (unchecked) or a text field for specifying the Database Connection as a variable (checked). Use the format: ${variable name} . The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Database Connection reference to using a Database Connection variable, you must change the **Database Connection Variable** field to **Yes** and specify the Database Connection variable in the **Database Connection Unresolved** field. Conversely, to change from using a Database Connection variable to using a Database Connection reference, you must change the **Database Connection Variable** field to **No** and specify the Database Connection reference in the **Database Connection** field.
Credentials	Credentials that specify the user and password for connecting to the database. These Credentials override any Credentials specified on the Database Connection. If Credentials are not specified in the Database Connection, you must specify them in the task.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Maximum Rows	If necessary, specifies a limit to the number of rows you want returned by the SQL/Stored Procedure statement. This value overrides any value you specify in the database connection. (A default limit can be specified by the SQL/Stored Procedure Maximum Rows Universal Controller system property.) If you set Maximum Rows to 0, no content from any of the ResultSets will be retrieved (the next() method on ResultSet will not be called). Each ResultSet will be closed, but no data or rows accessed.
Auto Cleanup	When data is retrieved as the result of a SQL task, the data is written into a database table. If Auto Cleanup is enabled, the data is discarded upon the successful completion of the task (or workflow if the task is contained within a workflow).
SQL Command	SQL command being executed against the database. Variables supported.
Result Processing Details	This section contains assorted detailed information about result processing for this task.

Result Processing	Specifies how the Controller should determine whether the SQL command failed or completed successfully. Options: - Skip Result Processing - Success Exitcode Range - The SQL command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. - Failure Exitcode Range - The SQL command is considered failed if its exit code falls within the range specified in the Exit Codes field. - Success Result Set Contains - The SQL command is considered completed successfully depending on the value in the first row of a specific database column (see Column Name, Operator, and Value fields). - Failure Result Set Contains - The SQL command is considered failed depending on the value in the first row of a specific database column (see Column Name, Operator, and Value fields).
Exit Codes	Required if Result Processing = Success Exitcode Range or Failure Exitcode Range. Specifies the range. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30.
Column Name	Required if Result Processing = Success Result Set Contains or Failure Result Set Contains. Specifies the name of a database column that is being checked for a specific value.
Operator	Operator being used for the comparison. Options: =, !=, >, >=, <, <=, regex. Note For operators >, >=, <, and <=, if the values being compared are whole numbers or decimal numbers between -9223372036854775808 and 9223372036854775807, they will be compared as numbers; otherwise, they will be compared as text lexicographically.
Value	Value being compared, using the operator specified.
Retry Options	This section contains specifications for retrying the task.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.

Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	    ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	    ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type= *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
SQL Results	Stores results of executed SQL statements, if any.
SQL Warnings	Warnings returned by executed SQL statements, if any.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (`ops_exclusive_order`) for this task instance.

Notes	Lists all notes associated with this record.

Running a SQL Task

You can run a SQL task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the SQL tasks list or SQL Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Stored Procedure Task

- Overview
- Built-In Variables
- Creating a Stored Procedure Task
    - Stored Procedure Task Details
    - Stored Procedure Task Details Field Descriptions
- Viewing a Stored Procedure Task Instance
    - Stored Procedure Task Instance Details
    - Stored Procedure Task Instance Details Field Descriptions
- Adding Stored Procedure Parameters
    - Adding a Parameter
    - Stored Procedure Parameter Field Descriptions
    - Deleting a Parameter
- Running a Stored Procedure Task
- Monitoring Task Execution

Overview

A Stored Procedure task allows you to execute a stored procedure against the database specified in the task.

Note

Before you can run a Stored Procedure task, you first must create a Database Connection, which defines the information needed to locate and access the database.

Built-In Variables

The following built-in variables can be used in a Stored Procedure task to pass data where appropriate:

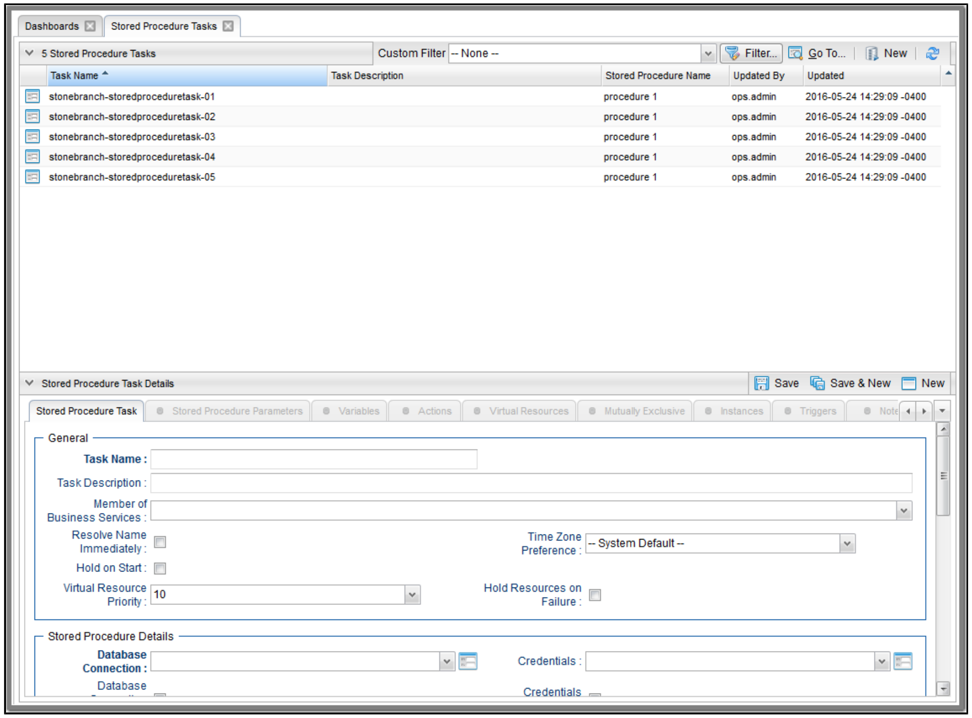
- Task Instance variables
- Stored Procedure Task Instance variables

Creating a Stored Procedure Task

Step 1

From the Automation Center navigation pane, select **Tasks > Stored Procedure Tasks**. The Stored Procedure Tasks list displays a list of all currently defined Stored Procedure tasks.

Below the list, Stored Procedure Task Details for a new Stored Procedure task displays.


Dashboards
Stored Procedure Tasks
Custom Filter
Filter...
Go To...
New
Stored Procedure Task Details
Save
Save & New
New
Stored Procedure Task
Stored Procedure Parameters
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Note
General
Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately :
Hold on Start :
Hold Resources on Failure :
Stored Procedure Details
Database Connection :
Credentials :
Database
Credentials

5 Stored Procedure Tasks

Custom Filter: -- None --

Task Name	Task Description	Stored Procedure Name	Updated By	Updated
stonebranch-storedproceduretask-01		procedure 1	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-storedproceduretask-02		procedure 1	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-storedproceduretask-03		procedure 1	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-storedproceduretask-04		procedure 1	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-storedproceduretask-05		procedure 1	ops.admin	2016-05-24 14:29:09 -0400

Time Zone Preference : -- System Default --

Virtual Resource Priority : 10

Step 2

Enter/select Details for a new Stored Procedure task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

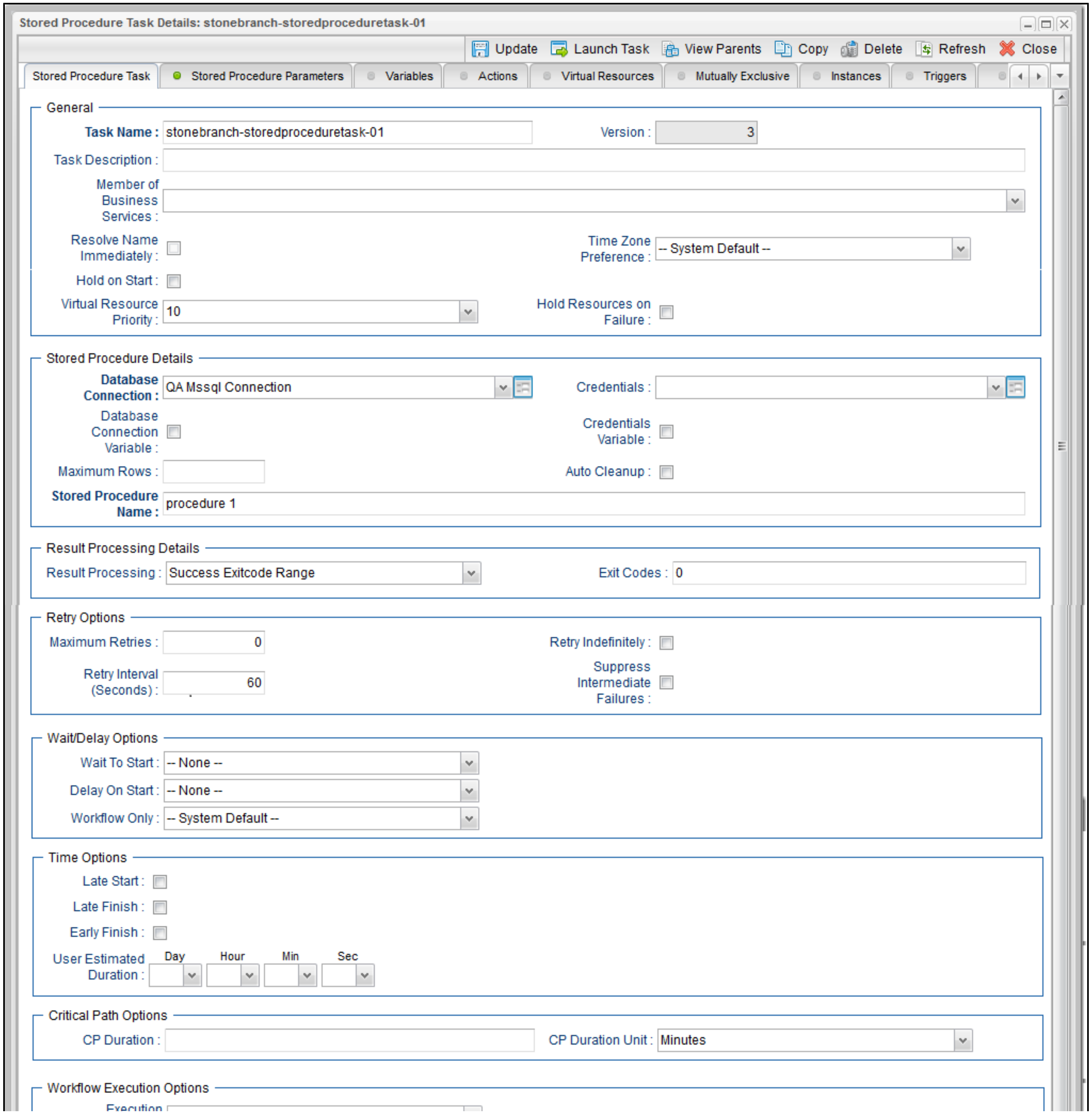
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Stored Procedure Task Details

The following Stored Procedure Task Details is for an existing Stored Procedure task.

Depending on the values that you enter / select for these fields, and whether or not the Stored Procedure task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Stored Procedure Task Details.


Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Stored Procedure Task
Stored Procedure Parameters
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers

Stored Procedure Task Details: stonebranch-storedproceduretask-01

General

Task Name : stonebranch-storedproceduretask-01

Version : 3

Task Description :

Member of Business Services :

Resolve Name Immediately : ☐

Time Zone Preference : -- System Default --

Hold on Start : ☐

Virtual Resource Priority : 10

Hold Resources on Failure : ☐

Stored Procedure Details

Database Connection : QA Mssql Connection

Credentials :

Database Connection Variable : ☐

Credentials Variable : ☐

Maximum Rows :

Auto Cleanup : ☐

Stored Procedure Name : procedure 1

Result Processing Details

Result Processing : Success Exitcode Range

Exit Codes : 0

Retry Options

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Wait/Delay Options

Wait To Start : -- None --

Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

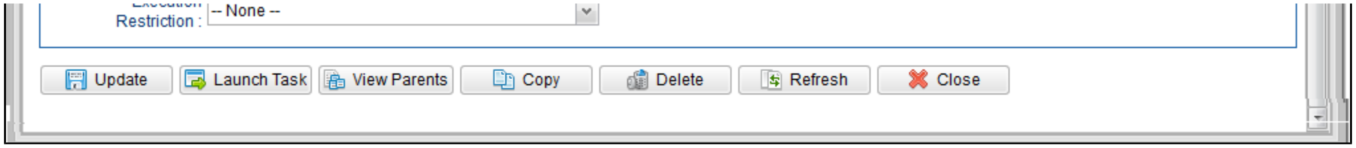
Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution


Execution Restriction : -- None --

Stored Procedure Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Stored Procedure Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.

Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Stored Procedure Details	This section contains assorted detailed information about the task.
Database Connection	Name of the Universal Controller Database Connection that defines the database. Select a database from the drop-down list or click the icon to create a new database connection.
Database Connection Variable	Indication of whether the Database Connection field is a reference field for selecting a specific Database Connection (unchecked) or a text field for specifying the Database Connection as a variable (checked). Use the format: ${variable name} . The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Database Connection reference to using a Database Connection variable, you must change the **Database Connection Variable** field to **Yes** and specify the Database Connection variable in the **Database Connection Unresolved** field. Conversely, to change from using a Database Connection variable to using a Database Connection reference, you must change the **Database Connection Variable** field to **No** and specify the Database Connection reference in the **Database Connection** field.
Credentials	Credentials that specify the user and password for connecting to the database. These Credentials override any Credentials specified on the Database Connection. If Credentials are not specified in the Database Connection, you must specify them in the task.

Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Maximum Rows	If necessary, specifies a limit to the number of rows you want returned by the SQL/Stored Procedure statement. This value overrides any value you specify in the database connection. (A default limit can be specified by the SQL/Stored Procedure Maximum Rows Universal Controller system property.) If you set Maximum Rows to 0, no content from any of the ResultSets will be retrieved (the next() method on ResultSet will not be called). Each ResultSet will be closed, but no data or rows accessed.
Auto Cleanup	When data is retrieved as the result of a SQL task, the data is written into a database table. If Auto Cleanup is enabled, the data is discarded upon the successful completion of the task (or workflow if the task is contained within a workflow).
Stored Procedure Name	Name of the file containing the stored procedure being executed against the database. Variables supported.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Result Processing	Specifies how the Controller should determine whether the Stored Procedure failed or completed successfully. Options: • Skip Result Processing. • Success Exitcode Range - The Stored Procedure is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range - The Stored Procedure is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Result Set Contains - The Stored Procedure is considered completed successfully depending on the value in a specific database column (see Column Name, Operator, and Value fields). • Failure Result Set Contains - The Stored Procedure is considered failed depending on the value in a specific database column (see Column Name, Operator, and Value fields). • Success Output Parameter - The Stored Procedure is considered completed successfully if its output parameter satisfies the condition specified in the associated Parameter Position, Operator, and Value fields. • Failure Output Parameter - The Stored Procedure is considered failed if its output parameter satisfies the condition specified in the associated Parameter Position, Operator, and Value fields.
Exit Codes	Required if Result Processing = Success Exitcode Range or Failure Exitcode Range. Specifies the range. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30.

Parameter Position	If Result Processing = Success Output Parameter or Failure Output Parameter; position of this parameter within a list of parameters.
Column Name	Required if Result Processing = Success Result Set Contains or Failure Result Set Contains. Specifies the name of a database column that is being checked for a specific value.
Operator	Operator being used for the comparison. Options: =, !=, >, >=, <, <=, regex. Note For operators >, >=, <, and <=, if the values being compared are whole numbers or decimal numbers between -9223372036854775808 and 9223372036854775807, they will be compared as numbers; otherwise, they will be compared as text lexicographically.
Value	Value being compared, using the operator specified.
Retry Options	This section contains specifications for retrying the task.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.

Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day
	Do not advance day.
	- Next Day
	Advance to the next day.
	- Next Business Day
	Advance to the next business day.
	- Sunday
	If today is not Sunday, advance to next Sunday.
	- Monday
	If today is not Monday, advance to next Monday.
	- Tuesday
	If today is not Tuesday, advance to next Tuesday.
	- Wednesday
	If today is not Wednesday, advance to next Wednesday.
	- Thursday
	If today is not Thursday, advance to next Thursday.
	- Friday
	If today is not Friday, advance to next Friday.
	- Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.

Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note ⚠ You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task instance.
Stored Procedure Parameters	See Adding Stored Procedure Parameters, below.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

Actions	Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task. Events are: • Task instance status • Exit codes • Late start • Late finish • Early finish Actions are: **Abort Action**: Abort the task if certain events occur. For details, see Abort Actions. **Email Notification**: Send an email if certain events occur. For details, see Email Notification Actions. **Set Variable**: Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow. **SNMP Notification**: Send an email if certain events occur. For details, see SNMP Notification Actions. **System Operation**: Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.
Instances	Lists all instances of the task.
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.
Notes	Lists all notes associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning.

Viewing a Stored Procedure Task Instance

When a Stored Procedure task is launched, the Controller creates a task instance record of that task.

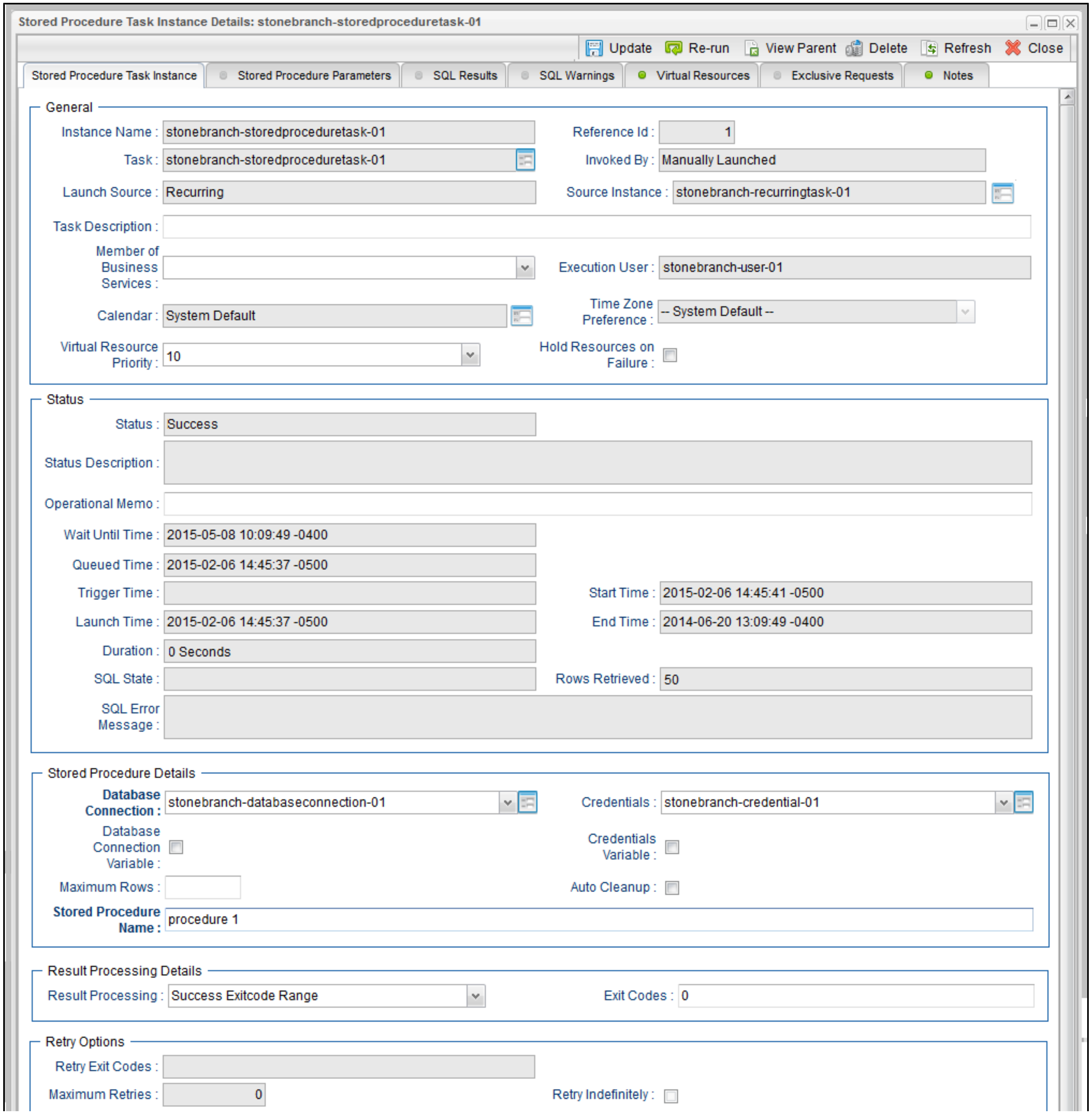
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Stored Procedure Task Details for that task
- Activity Monitor
- Task Instances list

Stored Procedure Task Instance Details

The following Stored Procedure Task Instance Details contains information on the execution of the task shown in the Stored Procedure Task Details.


Update
Re-run
View Parent
Delete
Refresh
Close
Stored Procedure Task Instance
Stored Procedure Parameters
SQL Results
SQL Warnings
Virtual Resources
Exclusive Requests
Notes

Stored Procedure Task Instance Details: stonebranch-storedproceduretask-01

General

Instance Name : stonebranch-storedproceduretask-01
Reference Id : 1
Task : stonebranch-storedproceduretask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : stonebranch-user-01
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Success
Status Description :
Operational Memo :
Wait Until Time : 2015-05-08 10:09:49 -0400
Queued Time : 2015-02-06 14:45:37 -0500
Trigger Time :
Start Time : 2015-02-06 14:45:41 -0500
Launch Time : 2015-02-06 14:45:37 -0500
End Time : 2014-06-20 13:09:49 -0400
Duration : 0 Seconds
SQL State :
Rows Retrieved : 50
SQL Error Message :

Stored Procedure Details

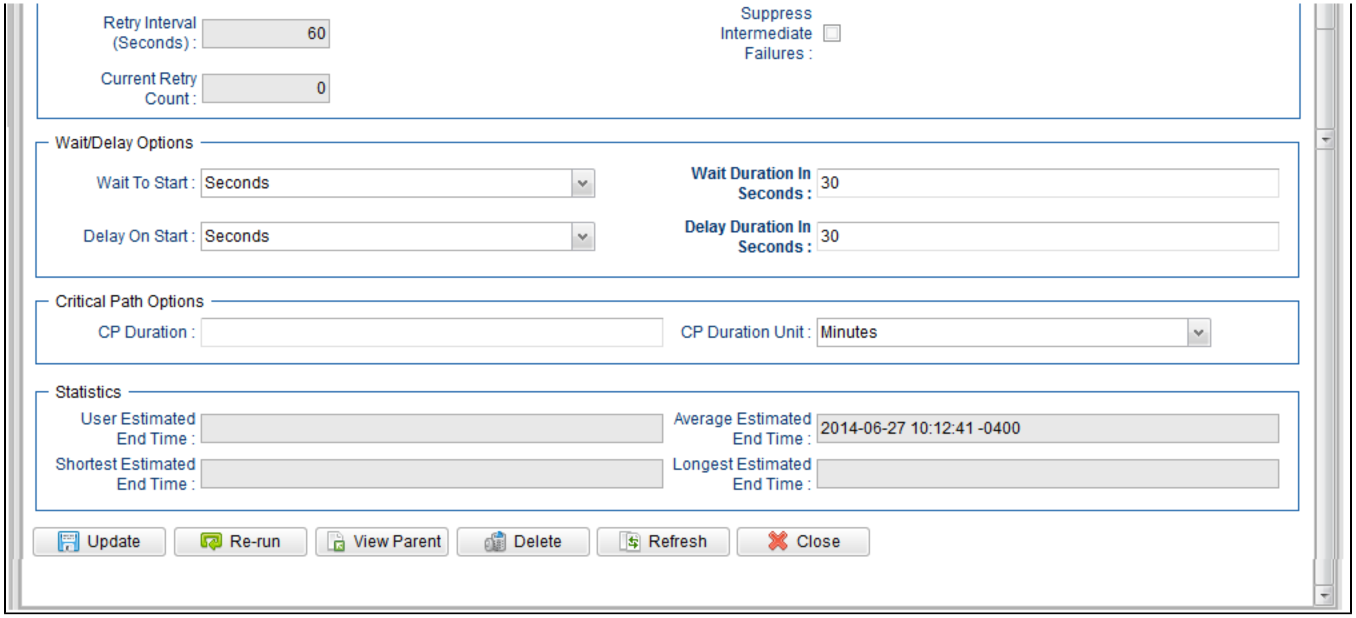
Database Connection : stonebranch-databaseconnection-01
Credentials : stonebranch-credential-01
Database Connection Variable : ☐
Credentials Variable : ☐
Maximum Rows :
Auto Cleanup : ☐
Stored Procedure Name : procedure 1

Result Processing Details

Result Processing : Success Exitcode Range
Exit Codes : 0

Retry Options

Retry Exit Codes :
Maximum Retries : 0
Retry Indefinitely : ☐



Retry Interval (Seconds) : 60

Current Retry Count : 0

Suppress Intermediate Failures : ☐

Wait To Start : Seconds

Wait Duration In Seconds : 30

Delay On Start : Seconds

Delay Duration In Seconds : 30

CP Duration :

CP Duration Unit : Minutes

User Estimated End Time :

Average Estimated End Time : 2014-06-27 10:12:41 -0400

Shortest Estimated End Time :

Longest Estimated End Time :

Stored Procedure Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Stored Procedure Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.

Invoked by	System-supplied; how the task instance was launched. Options: - Trigger: (Trigger Name) Instance was launched by the named trigger. - Workflow: (Workflow Name) Instance was launched by the named workflow. - Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Launch Source	System-supplied; Source from which this Recurring task was launched. Options: - Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. - Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. - Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. - Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)

Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
SQL State	System-supplied; resolves to a return code that indicates the outcome of the most recently executed SQL statement.
Rows Retrieved	System-supplied; number of rows retrieved by the SQL procedure.
SQL Error Message	System-supplied; any error messages returned by the SQL procedure.
Stored Procedure Details	This section contains assorted detailed information about the task instance.
Database Connection	Name of the Universal Controller Database Connection that defines the database. Select a database from the drop-down list or click the icon to create a new database connection.

Database Connection Variable	Indication of whether the Database Connection field is a reference field for selecting a specific Database Connection (unchecked) or a text field for specifying the Database Connection as a variable (checked). Use the format: ${variable name} . The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Database Connection reference to using a Database Connection variable, you must change the **Database Connection Variable** field to **Yes** and specify the Database Connection variable in the **Database Connection Unresolved** field. Conversely, to change from using a Database Connection variable to using a Database Connection reference, you must change the **Database Connection Variable** field to **No** and specify the Database Connection reference in the **Database Connection** field.
Credentials	Credentials that specify the user and password for connecting to the database. These Credentials override any Credentials specified on the Database Connection. If Credentials are not specified in the Database Connection, you must specify them in the task.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Maximum Rows	If necessary, specifies a limit to the number of rows you want returned by the SQL/Stored Procedure statement. This value overrides any value you specify in the database connection. (A default limit can be specified by the SQL/Stored Procedure Maximum Rows Universal Controller system property.) If you set Maximum Rows to 0, no content from any of the ResultSets will be retrieved (the next() method on ResultSet will not be called). Each ResultSet will be closed, but no data or rows accessed.
Auto Cleanup	When data is retrieved as the result of a SQL task, the data is written into a database table. If Auto Cleanup is enabled, the data is discarded upon the successful completion of the task (or workflow if the task is contained within a workflow).
Stored Procedure Name	Name of the file containing the stored procedure being executed against the database. Variables supported.
Result Processing Details	This section contains assorted detailed information about result processing for this task.

Result Processing	Specifies how the Controller should determine whether the Stored Procedure failed or completed successfully. Options: • Skip Result Processing. • Success Exitcode Range - The Stored Procedure is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range - The Stored Procedure is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Result Set Contains - The Stored Procedure is considered completed successfully depending on the value in a specific database column (see Column Name, Operator, and Value fields). • Failure Result Set Contains - The Stored Procedure is considered failed depending on the value in a specific database column (see Column Name, Operator, and Value fields). • Success Output Parameter - The Stored Procedure is considered completed successfully if its output parameter satisfies the condition specified in the associated Parameter Position, Operator, and Value fields. • Failure Output Parameter - The Stored Procedure is considered failed if its output parameter satisfies the condition specified in the associated Parameter Position, Operator, and Value fields.
Exit Codes	Required if Result Processing = Success Exitcode Range or Failure Exitcode Range. Specifies the range. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30.
Parameter Position	If Result Processing = Success Output Parameter or Failure Output Parameter; position of this parameter within a list of parameters.
Column Name	Required if Result Processing = Success Result Set Contains or Failure Result Set Contains. Specifies the name of a database column that is being checked for a specific value.
Operator	Operator being used for the comparison. Options: =, !=, >, >=, <, <=, regex. Note For operators >, >=, <, and <=, if the values being compared are whole numbers or decimal numbers between -9223372036854775808 and 9223372036854775807, they will be compared as numbers; otherwise, they will be compared as text lexicographically.
Value	Value being compared, using the operator specified.
Retry Options	This section contains specifications for retrying the task.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.

Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day Do not advance day.
	- Next Day Advance to the next day.
	- Next Business Day Advance to the next business day.
	- Sunday If today is not Sunday, advance to next Sunday.
	- Monday If today is not Monday, advance to next Monday.
	- Tuesday If today is not Tuesday, advance to next Tuesday.
	- Wednesday If today is not Wednesday, advance to next Wednesday.
	- Thursday If today is not Thursday, advance to next Thursday.
	- Friday If today is not Friday, advance to next Friday.
	- Saturday If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: - – None – - Duration - Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Stored Procedure Parameters	See Adding Stored Procedure Parameters, below.
SQL Results	Stores results of executed SQL statements, if any.
SQL Warnings	Warnings returned by executed SQL statements, if any.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.

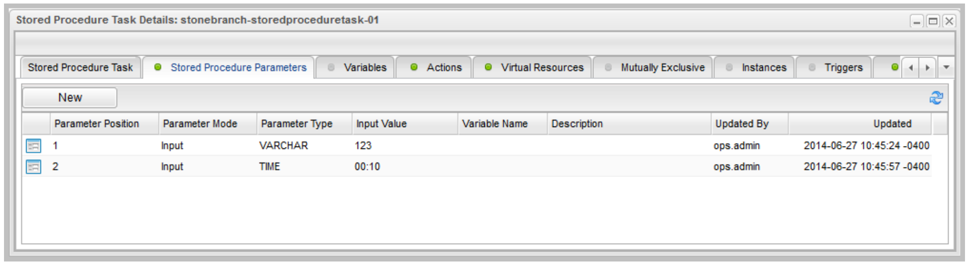
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.
Notes	Lists all notes associated with this record.

Adding Stored Procedure Parameters

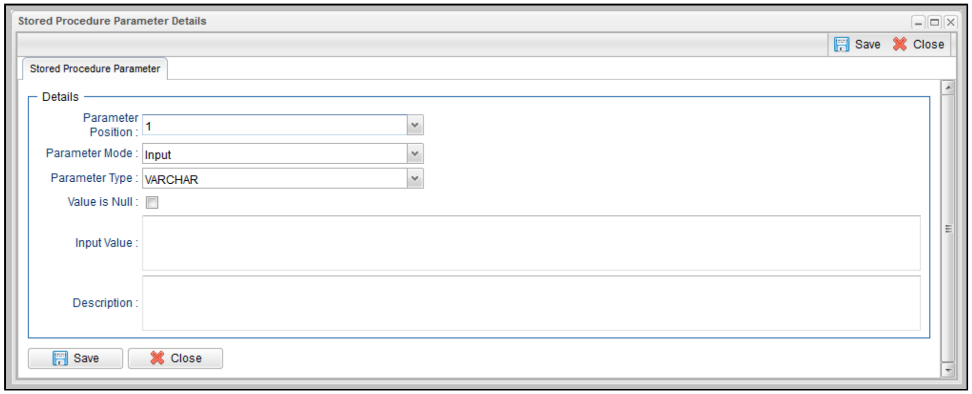
You can enter one or more parameters for each stored procedure, as described below.

Adding a Parameter

<table>
<tr><td>Step 1</td><td>Open the Stored Procedure task to which you want to add the parameter.</td></tr>
<tr><td>Step 2</td><td>Click the Stored Procedure Parameters tab. The Stored Procedure Parameters list displays a list of all currently defined Stored Procedure parameters.


Stored Procedure Task Details: stonebranch-storedproceduretask-01
Stored Procedure Task
Stored Procedure Parameters
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
New

<table>
<tr><th>Parameter Position</th><th>Parameter Mode</th><th>Parameter Type</th><th>Input Value</th><th>Variable Name</th><th>Description</th><th>Updated By</th><th>Updated</th></tr>
<tr><td>1</td><td>Input</td><td>VARCHAR</td><td>123</td><td></td><td></td><td>ops.admin</td><td>2014-06-27 10:45:24 -0400</td></tr>
<tr><td>2</td><td>Input</td><td>TIME</td><td>00:10</td><td></td><td></td><td>ops.admin</td><td>2014-06-27 10:45:57 -0400</td></tr>
</table>
</td></tr>
<tr><td>Step 3</td><td>Click the New button to display Stored Procedures Parameter Details for a new parameter.


Stored Procedure Parameter Details
Save
Close
Stored Procedure Parameter
Details
Save
Close

Parameter Position : 1
Parameter Mode : Input
Parameter Type : VARCHAR
Value is Null : ☐
Input Value :
Description :
</td></tr>
<tr><td>Step 4</td><td>Use the field descriptions, below, to define the parameter.</td></tr>
<tr><td>Step 5</td><td>Click the Save button.</td></tr>
</table>

Stored Procedure Parameter Field Descriptions

Field Name	Description
Parameter Position	Position of this parameter within a list of parameters.
Parameter Mode	Mode of this parameter. Options: • Input • Output • Input/Output
Parameter Type	Type of parameter. Options: • NUMERIC • DECIMAL • INTEGER • SMALLINT • FLOAT • REAL • DOUBLE • VARCHAR • BOOLEAN • DATE • TIME • TIMESTAMP • BIGINT • VARBINARY
Value is Null	If Parameter Mode = Input or Input/Output; Value for the parameter is a database NULL value; applies to the input part of a stored procedure parameter. That is, if a value in a database is undefined, it is NULL, which means it has no set value. An input value can be NULL and is represented by selecting **Value is Null**.
Input Value	If Parameter Mode = Input or Input/Output; Input value of the parameter (up to a maximum of 4000 characters), if any.
Description	Description of this parameter.
Variable Scope	If Parameter Mode = Output or Input/Output; applies to parameters associated with a task in a workflow. Scope of the variable to assign the Output value. Options: • Self • Parent • Top Level Parent • Global

Variable Name	If Parameter Mode = Output or Input/Output; name of variable to assign the Output value.

Deleting a Parameter

To delete a single parameter, either:

- Right-click the parameter on the Stored Procedure Parameters list and click **Delete** on the Action menu.
- Open the Stored Procedure Parameter record and click the **Delete** button.

Running a Stored Procedure Task

You can run a Stored Procedure task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the Stored Procedure tasks list or Stored Procedure Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Email Task

- Overview
- Built-In Variables
- Creating an Email Task
    - Email Task Details
    - Email Task Details Field Descriptions
    - Report Variable Resolution
- Viewing an Email Task Instance
    - Email Task Instance Details
    - Email Task Instance Details Field Descriptions
- Running an Email Task
- Monitoring Task Execution

Overview

The Email task allows you to create and send emails. In order to execute Email tasks, you first need to define an Email Connection, which defines the server information needed to create and send emails.

Built-In Variables

The following built-in variables can be used in an Email task to pass data where appropriate:

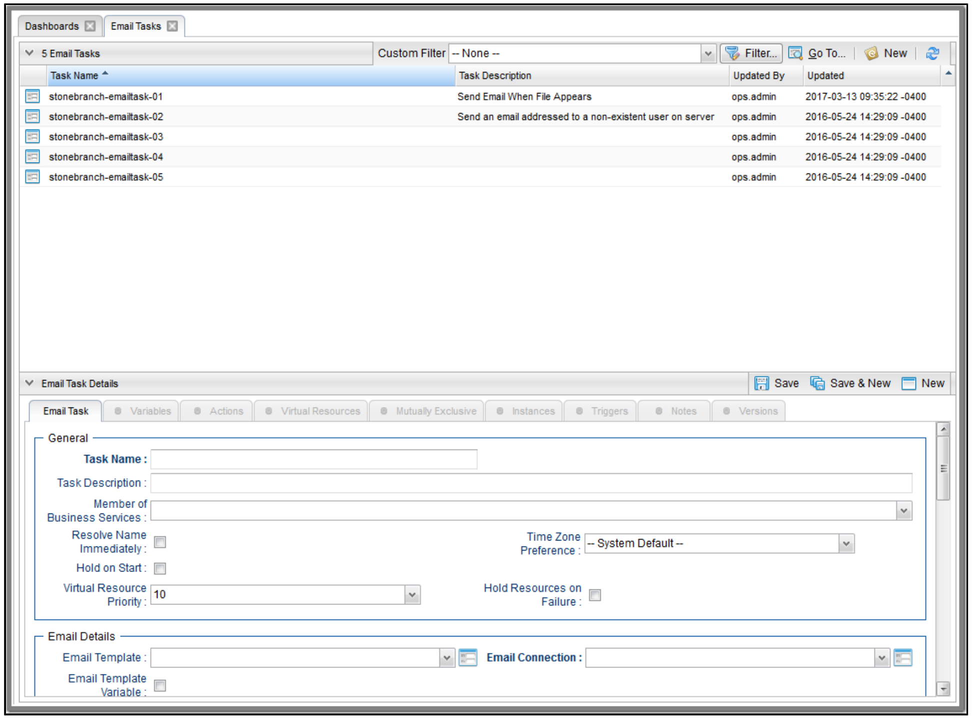
- Task Instance variables

Creating an Email Task

Step 1

From the Automation Center navigation pane, select **Tasks > Email Tasks**. The Email Tasks list displays a list of all currently defined Email tasks.

Below the list, Email Task Details for a new Email task displays.



Custom Filter: -- None --

Task Name	Task Description	Updated By	Updated
stonebranch-emailtask-01	Send Email When File Appears	ops.admin	2017-03-13 09:35:22 -0400
stonebranch-emailtask-02	Send an email addressed to a non-existent user on server	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-emailtask-03		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-emailtask-04		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-emailtask-05		ops.admin	2016-05-24 14:29:09 -0400

Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐
Email Template :
Email Connection :
Email Template Variable : ☐

Step 2

Enter/select Details for a new Email task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

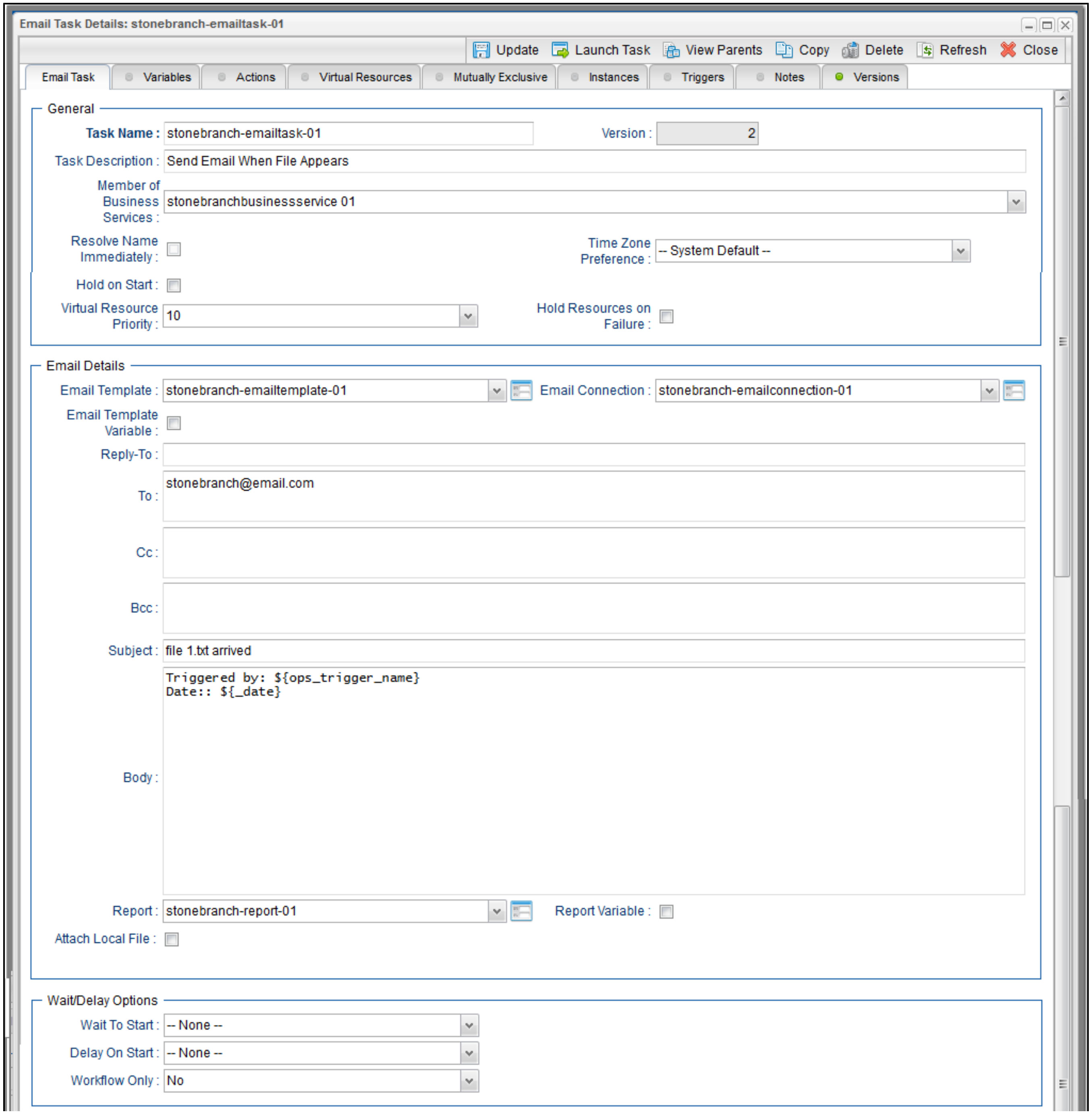
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Email Task Details

The following Email Task Details is for an existing Email task.

Depending on the values that you enter / select for these fields, and whether or not the Email task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Email Task Details.


Email Task Details: stonebranch-emailtask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Email Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

General

Task Name : stonebranch-emailtask-01

Version : 2

Task Description : Send Email When File Appears

Member of Business Services : stonebranchbusinessservice 01

Resolve Name Immediately : ☐

Time Zone Preference : -- System Default --

Hold on Start : ☐

Virtual Resource Priority : 10

Hold Resources on Failure : ☐

Email Details

Email Template : stonebranch-emailtemplate-01

Email Connection : stonebranch-emailconnection-01

Email Template Variable : ☐

Reply-To :

To : stonebranch@email.com

Cc :

Bcc :

Subject : file 1.txt arrived

Body :

```
Triggered by: ${ops_trigger_name}
Date:: ${_date}
```

Report : stonebranch-report-01

Report Variable : ☐

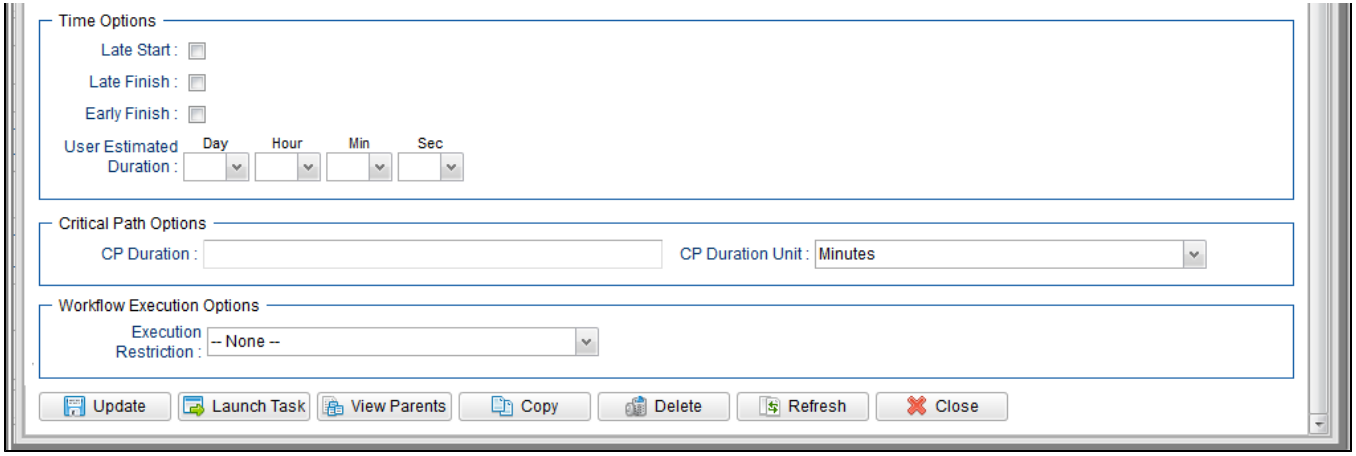
Attach Local File : ☐

Wait/Delay Options

Wait To Start : -- None --

Delay On Start : -- None --

Workflow Only : No


Time Options
Late Start :
Late Finish :
Early Finish :
User Estimated Duration :
Day
Hour
Min
Sec
Critical Path Options
CP Duration :
CP Duration Unit :
Minutes
Workflow Execution Options
Execution Restriction :
-- None --
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close

Email Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Email Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Email Details	This section contains assorted detailed information about the task.
Email Template	Name of an Email template defined in an Email Template Details. An Email template allows you to specify standard recipients and text for outgoing emails. Enter the name of an existing Email template, select an Email template from the drop-down list, or click the Details icon to create a new Email template. Every Email template specifies an Email connection. If you do not specify an Email template in this field, you must specify an Email connection in the Email Connection field. If you specify both an Email template (in this field) and an Email Connection, the Email server specified in the Email Connection field overrides the Email server specified in this field. Note ⚠ Any information specified in an Email task (or Email Notification) overrides what is specified in an Email template.

Email Template Variable	Indication of whether the Email Template field is a reference field for selecting a specific Email Template (unchecked) or a text field for specifying the Email Template as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Email Template reference to using a Email Template variable, you must change the **Email Template Variable** field to **Yes** and specify the Email Template variable in the **Email Template Unresolved** field. Conversely, to change from using an Email Template variable to using an Email Template reference, you must change the **Email Template Variable** field to **No** and specify the Email Template reference in the **Email Template** field.
Email Connection	Required if an Email Template is not specified in the Email Template field; Name of an outgoing Email Connection (Type = Outgoing). An Email Connection specifies information about an outgoing or incoming email server. Enter the name of an existing outgoing Email Connection, select an existing outgoing Email Connection from the drop-down list, or clear the Email Connection field and click the Details icon to create a new Email Connection (Outgoing will be pre-selected in the Type field). If you specify both an Email Template and an Email Connection (in this field), the Email Connection specified in this field overrides the Email Connection specified in the Email Template field.
Reply-To	Email address of the sender. Use commas to separate multiple recipients. Variables and functions supported.
To	Email address of the recipient. Use commas to separate multiple recipients. Variables and functions supported.
Cc	Email address of the party being sent a copy of the email, if any. Use commas to separate multiple recipients. Variables and functions supported.
Bcc	Email address of the party being sent a blind (hidden) copy of the email, if any. Use commas to separate multiple recipients. Variables and functions supported.
Subject	Subject line of the email. Variables and functions supported.
Body	Text of the email message. Variables and functions supported. Note If both the Email Template and the Email Task (or Email Notification) contain text in the Body, the text in the Email Template is appended to the text in the Email Task (or Email Notification).
Report	Report to attach to this email.

Report Variable	Indication of whether the Report field is a reference field for selecting a specific Report (unchecked) or a text field for specifying the Report as a variable (checked). Use the format: ${variable name} . The variable must be a supported type as described in Variables and Functions. Note When updating multiple Email Tasks, to change from using a report reference to using a report variable, you must change the **Report Variable** field to **Yes** and specify the report variable in the **Report Unresolved** field. Conversely, to change from using a report variable to a using a report reference, you must change the **Report Variable** field to **No** and specify the report reference in the **Report** field.
Attach Local File	If the uc.email.attachments.local.path Universal Controller Start-Up Property specifies a local directory; specification for whether or not to attach a local file to the task.
Local Attachments Path	If Attach Local File is selected; Read-Only field showing the location of Local Attachments for the connected Node.
Local Attachment	If Attach Local File is selected; Name of the file(s) to attach. Supports variables as well as comma-separated list of file names.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day
	Do not advance day.
	- Next Day
	Advance to the next day.
	- Next Business Day
	Advance to the next business day.
	- Sunday
	If today is not Sunday, advance to next Sunday.
	- Monday
	If today is not Monday, advance to next Monday.
	- Tuesday
	If today is not Tuesday, advance to next Tuesday.
	- Wednesday
	If today is not Wednesday, advance to next Wednesday.
	- Thursday
	If today is not Thursday, advance to next Thursday.
	- Friday
	If today is not Friday, advance to next Friday.
	- Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: - – None – - Duration - Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: - - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) - Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. - No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note ⚠ You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

Actions	Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task. Events are: • Task instance status • Exit codes • Late start • Late finish • Early finish Actions are: **Abort Action**: Abort the task if certain events occur. For details, see Abort Actions. **Email Notification**: Send an email if certain events occur. For details, see Email Notification Actions. **Set Variable**: Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow. **SNMP Notification**: Send an email if certain events occur. For details, see SNMP Notification Actions. **System Operation**: Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.
Instances	Lists all instances of the task.
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.
Notes	Lists all notes associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning.

Report Variable Resolution

Reports do not have to be unique by Title. However, Reports with the same Title must be unique per visibility: per User, per Group, and per Everyone.

Accordingly, the following applies regarding Report Variable field resolution.

Once resolved, the Report Variable field value could match multiple Reports with the same Title, but with different visibilities. Therefore, there is an order of precedence to choosing the report by Title:

1. User visibility (execution user).
2. Group visibility (execution user's groups).
3. Everyone visibility.
4. Any other report(s). (This is applicable only in the case of an administrator who can view all reports.)

If the execution user belongs to more than one Group, and there is more than one report matching the Title visible to those Groups, the first report found will be chosen.

If multiple reports are found by resolved report Title, the following will be logged:

```
Found more than one report with name <report-title> visible to execution user <execution-user>.
```

If the resolved report Title does not match any report visible to the execution user, the task instance will transition into the Start Failure status with the following status description:

```
Could not find report with name <report-title> visible to execution user <execution-user>.
```

If the Report Variable cannot be resolved, the task instance will transition into the Start Failure status with the following status description:

```
Report variable not resolved.
```

A Report Variable that resolves to blank implies that no report should be included. This is not considered an error; the task instance will proceed as normal.

Viewing an Email Task Instance

When an Email task is launched, the Controller creates a task instance record of that task.

A task instance contains detailed information about a single execution of that task.

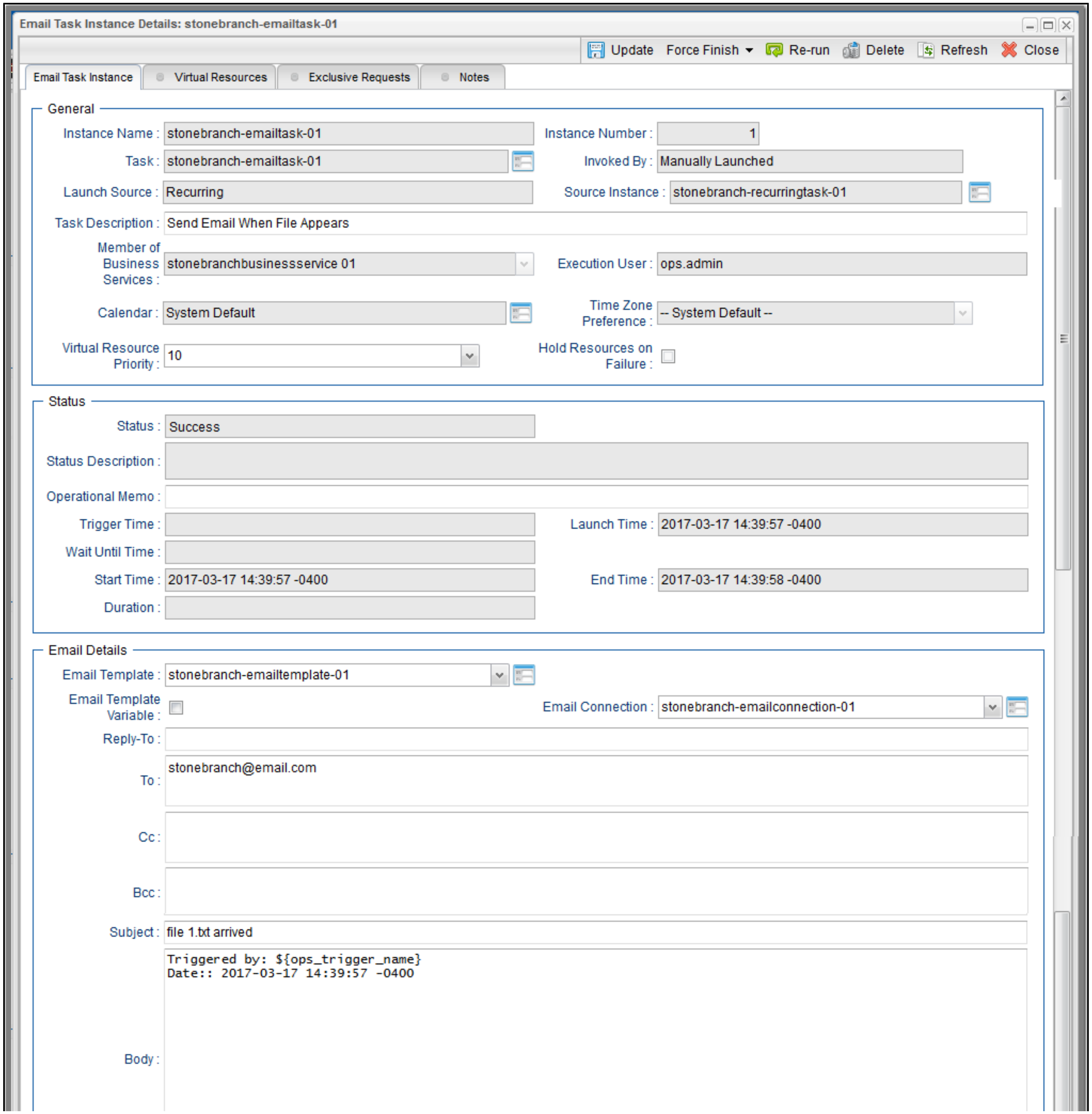
You can access a task instance from:

- **Instances tab** on the Email Task Details for that task
- Activity Monitor

- Task Instances list

Email Task Instance Details

The following Email Task Instance Details contains information on the execution of the task shown in the Email Task Details.


Email Task Instance Details: stonebranch-emailtask-01
Update
Force Finish
Re-run
Delete
Refresh
Close
Email Task Instance
Virtual Resources
Exclusive Requests
Notes

General

Instance Name : stonebranch-emailtask-01
Instance Number : 1
Task : stonebranch-emailtask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description : Send Email When File Appears
Member of Business Services : stonebranchbusinessservice 01
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

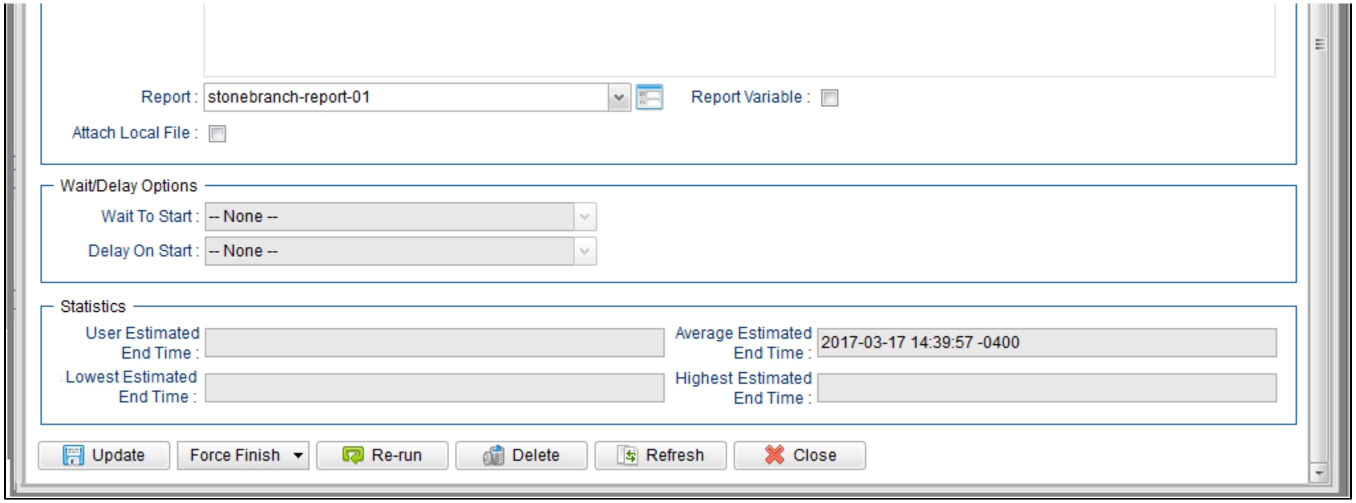
Status

Status : Success
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2017-03-17 14:39:57 -0400
Wait Until Time :
Start Time : 2017-03-17 14:39:57 -0400
End Time : 2017-03-17 14:39:58 -0400
Duration :

Email Details

Email Template : stonebranch-emailtemplate-01
Email Template Variable : ☐
Email Connection : stonebranch-emailconnection-01
Reply-To :
To : stonebranch@email.com
Cc :
Bcc :
Subject : file 1.txt arrived
Body :

```
Triggered by: ${ops_trigger_name}
Date:: 2017-03-17 14:39:57 -0400
```



Report : stonebranch-report-01

Report Variable : ☐

Attach Local File : ☐

Wait/Delay Options

Wait To Start : -- None --

Delay On Start : -- None --

Statistics

User Estimated End Time :

Average Estimated End Time : 2017-03-17 14:39:57 -0400

Lowest Estimated End Time :

Highest Estimated End Time :

Email Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Email Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Launch Source	System-supplied; Source from which this Recurring task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.

Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Email Details	This section contains assorted detailed information about the task instance.
Email Template	Name of an Email template defined in an Email Template Details. An Email template allows you to specify standard recipients and text for outgoing emails. Enter the name of an existing Email template, select an Email template from the drop-down list, or click the Details icon to create a new Email template. Every Email template specifies an Email connection. If you do not specify an Email template in this field, you must specify an Email connection in the Email Connection field. If you specify both an Email template (in this field) and an Email Connection, the Email server specified in the Email Connection field overrides the Email server specified in this field. Note Any information specified in an Email task (or Email Notification) overrides what is specified in an Email template.
Email Template Variable	Indication of whether the Email Template field is a reference field for selecting a specific Email Template (unchecked) or a text field for specifying the Email Template as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Email Template reference to using a Email Template variable, you must change the **Email Template Variable** field to **Yes** and specify the Email Template variable in the **Email Template Unresolved** field. Conversely, to change from using an Email Template variable to using an Email Template reference, you must change the **Email Template Variable** field to **No** and specify the Email Template reference in the **Email Template** field.

Email Connection	Required if an Email Template is not specified in the Email Template field; Name of an outgoing Email Connection (Type = Outgoing). An Email Connection specifies information about an outgoing or incoming email server. Enter the name of an existing outgoing Email Connection, select an existing outgoing Email Connection from the drop-down list, or clear the Email Connection field and click the Details icon to create a new Email Connection (Outgoing will be pre-selected in the Type field). If you specify both an Email Template and an Email Connection (in this field), the Email Connection specified in this field overrides the Email Connection specified in the Email Template field.
Reply-To	Email address of the sender. Use commas to separate multiple recipients. Variables and functions supported.
To	Email address of the recipient. Use commas to separate multiple recipients. Variables and functions supported.
Cc	Email address of the party being sent a copy of the email, if any. Use commas to separate multiple recipients. Variables and functions supported.
Bcc	Email address of the party being sent a blind (hidden) copy of the email, if any. Use commas to separate multiple recipients. Variables and functions supported.
Subject	Subject line of the email. Variables and functions supported.
Body	Text of the email message. Variables and functions supported. Note If both the Email Template and the Email Task (or Email Notification) contain text in the Body, the text in the Email Template is appended to the text in the Email Task (or Email Notification).
Report	Report to attach to this email.
Report Variable	Indication of whether the Report field is a reference field for selecting a specific Report (unchecked) or a text field for specifying the Report as a variable (checked). Use the format: ${variable name} . The variable must be a supported type as described in Variables and Functions. Note When updating multiple Email Tasks, to change from using a report reference to using a report variable, you must change the **Report Variable** field to **Yes** and specify the report variable in the **Report Unresolved** field. Conversely, to change from using a report variable to a using a report reference, you must change the **Report Variable** field to **No** and specify the report reference in the **Report** field.
Attach Local File	If the uc.email.attachments.local.path Universal Controller Start-Up Property specifies a local directory; specification for whether or not to attach a local file to the task.

Local Attachments Path	If Attach Local File is selected; Read-Only field showing the location of Local Attachments for the connected Node.
Local Attachment	If Attach Local File is selected; Name of the file(s) to attach. Supports variables as well as comma-separated list of file names.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day
	Do not advance day.
	- Next Day
	Advance to the next day.
	- Next Business Day
	Advance to the next business day.
	- Sunday
	If today is not Sunday, advance to next Sunday.
	- Monday
	If today is not Monday, advance to next Monday.
	- Tuesday
	If today is not Tuesday, advance to next Tuesday.
	- Wednesday
	If today is not Wednesday, advance to next Wednesday.
	- Thursday
	If today is not Thursday, advance to next Thursday.
	- Friday
	If today is not Friday, advance to next Friday.
	- Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: - – None – - Duration - Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.

CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.

Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.

Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
Delete	Deletes the current record.

Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.
Notes	Lists all notes associated with this record.

Running an Email Task

You can run an Email task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the Email Tasks list or Email Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Web Service Task

- Overview
- SSL/TLS Secured HTTPS
- Built-In Variables
- Creating a Web Service Task
    - Web Service Task Details
    - Web Service Task Details Field Descriptions
- Viewing a Web Service Task Instance
    - Web Service Task Instance Details
    - Web Service Task Instance Details Field Descriptions
- Running a Web Service Task
- Monitoring Task Execution

Overview

The Web Service Task allows you to invoke a Web Service running on any application server.

SSL/TLS Secured HTTPS

Web Service Tasks support the use of https:// instead of the non-encrypted http:// for the Web Service Task URL.

This requires setting up a truststore (keystore) and setting the following properties in the Universal Controller Start-up Properties (uc.properties) file:

- uc.trustmanager.truststore
- uc.trustmanager.truststore.password

You must make sure that the HTTPS server's certificate (or root certificate) exists in the truststore that is referenced by these two properties. This is required to validate the remote web service providers identity. Universal Controller does not provide an option to bypass https certificate validation.

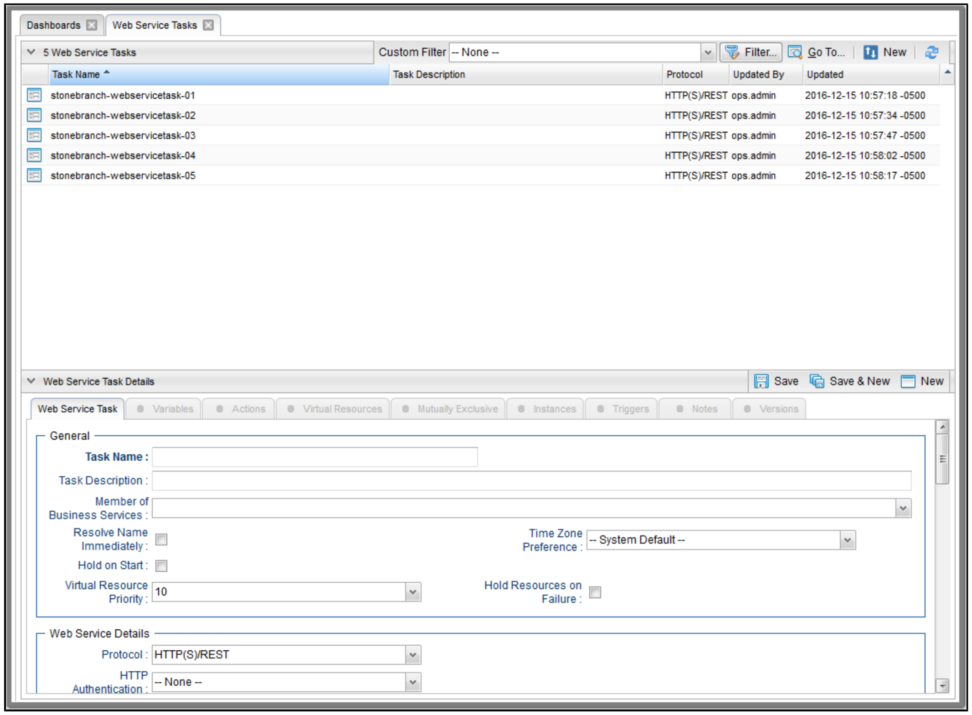
The hostname in your URL is verified against the certificate and must match the certificate's CN (Common Name) or SAN (Subject Alternative Name).

Built-In Variables

The following built-in variables can be used in a Web Service task to pass data where appropriate:

- Task Instance variables
- Web Service Task Instance variables

Creating a Web Service Task

Step 1	From the Automation Center navigation pane, select **Tasks > Web Service Tasks**. The Web Service Tasks list displays a list of all currently defined Web Service tasks. Below the list, Web Service Task Details for a new Web Service task displays. 
Step 2	Enter/select Details for a new Web Service task, using the field descriptions below as a guide. • Required fields display in **boldface**. • Default values for fields, if available, display automatically. To display more of the Details fields on the screen, you can either: • Use the scroll bar. • Temporarily hide the list above the Details. • Click the **New** button above the list to display a pop-up version of the Details.
Step 3	Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Dashboards
Web Service Tasks
5 Web Service Tasks
Filter...
Go To...
New
Web Service Task Details
Save
Save & New
New
Web Service Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Web Service Details

Custom Filter: -- None --

Task Name	Task Description	Protocol	Updated By	Updated
stonebranch-webservicetask-01		HTTP(S)/REST	ops.admin	2016-12-15 10:57:18 -0500
stonebranch-webservicetask-02		HTTP(S)/REST	ops.admin	2016-12-15 10:57:34 -0500
stonebranch-webservicetask-03		HTTP(S)/REST	ops.admin	2016-12-15 10:57:47 -0500
stonebranch-webservicetask-04		HTTP(S)/REST	ops.admin	2016-12-15 10:58:02 -0500
stonebranch-webservicetask-05		HTTP(S)/REST	ops.admin	2016-12-15 10:58:17 -0500

Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐
Protocol : HTTP(S)/REST
HTTP Authentication : -- None --

Note

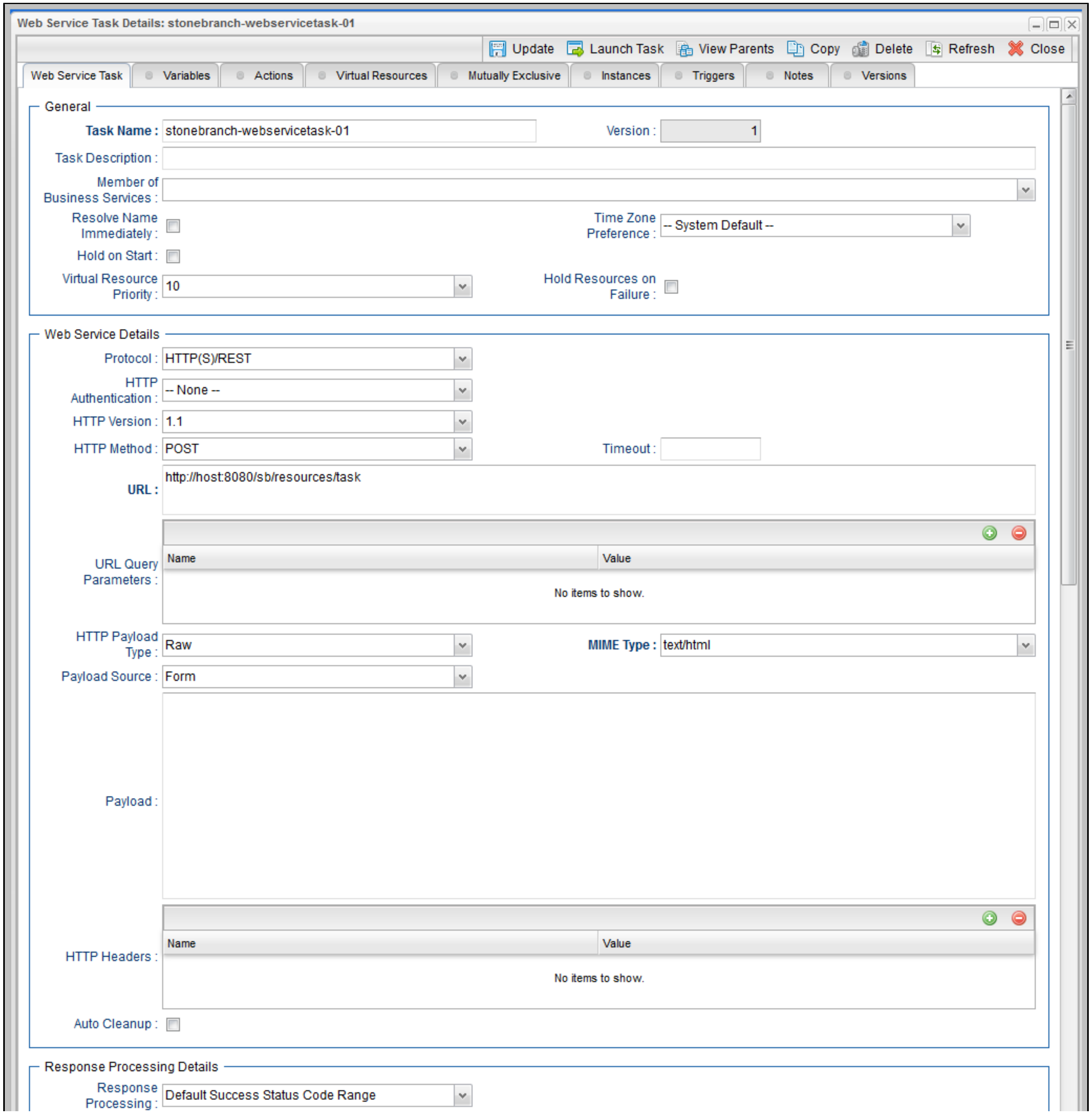
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Web Service Task Details

The following Web Service Task Details is for an existing Web Service task.

Depending on the values that you enter / select for these fields, and whether or not the Web Service task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Web Service Task Details.


Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Web Service Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

Web Service Task Details: stonebranch-webservicetask-01

General

Task Name : stonebranch-webservicetask-01
Version : 1
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Web Service Details

Protocol : HTTP(S)/REST
HTTP Authentication : -- None --
HTTP Version : 1.1
HTTP Method : POST
Timeout :
URL : http://host:8080/sb/resources/task

URL Query Parameters :

Name	Value
No items to show.	

HTTP Payload Type : Raw
MIME Type : text/html
Payload Source : Form
Payload :

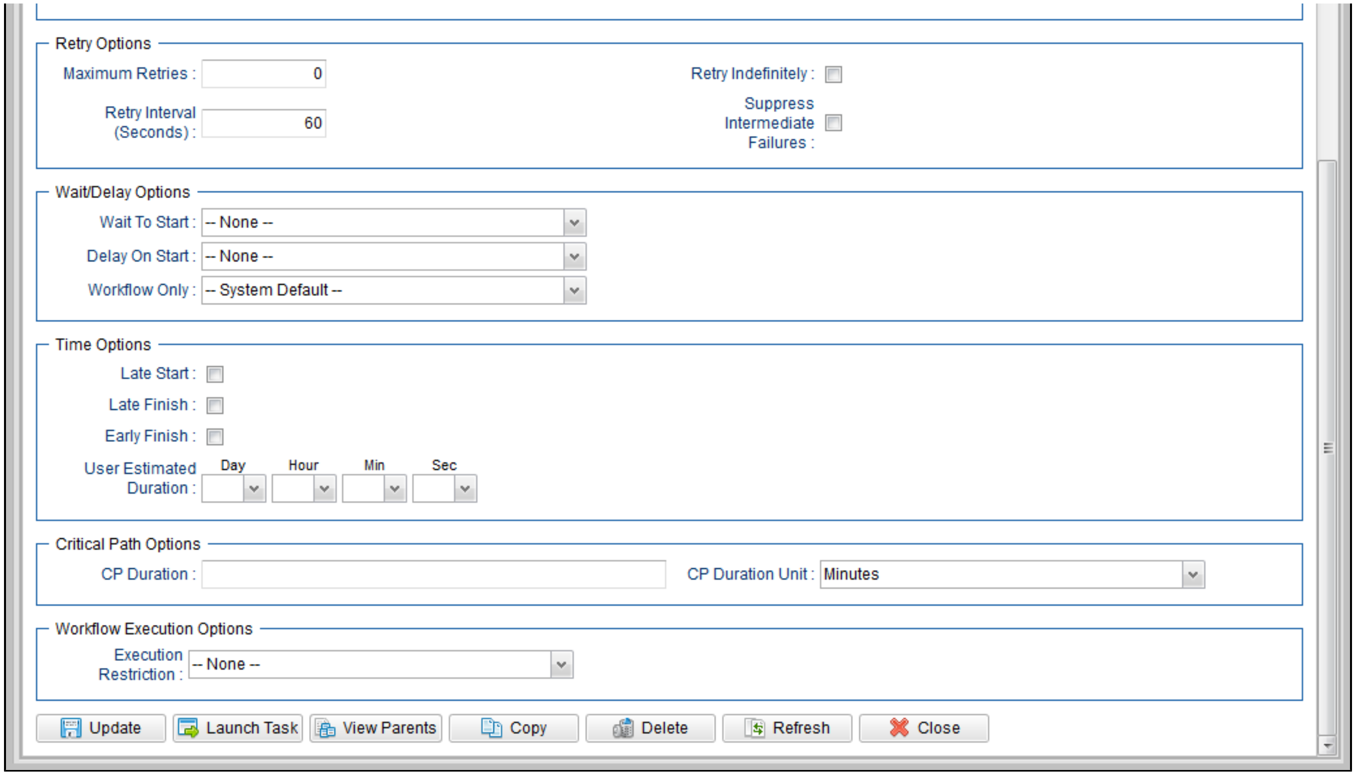
HTTP Headers :

Name	Value
No items to show.	

Auto Cleanup : ☐

Response Processing Details

Response Processing : Default Success Status Code Range



Retry Options

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Wait/Delay Options

Wait To Start : -- None --

Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

Web Service Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Web Service Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)

Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Web Service Details	This section contains assorted detailed information about the task.
Protocol	Protocol to use for the operation. Options: • HTTP(S)/REST • SOAP Default is HTTP(S)/REST.

HTTP Authentication	HTTP authentication scheme to use. Options: - - - None - - - Basic Default is - - None - -.
Credentials	If HTTP Authentication = Basic; Credentials used when invoking the Web Service.
Credentials Variable	If HTTP Authentication = Basic; Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: ${variable name} . The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
HTTP Version	Version of the HTTP protocol to use. Options: - 1.0 - 1.1 Default is 1.1.
HTTP Method	If Protocol = HTTP(S)/REST; Type of HTTP request method to use. Options: - GET - POST - PUT - PATCH - DELETE Default is POST.

SOAP Version	If Protocol = SOAP; Version of the SOAP protocol to use. Options: - 1.1 - 1.2 Default is 1.2.
Timeout	Number of seconds to wait for the request to complete. If no value is specified, the value defaults to the Web Service Task Timeout Universal Controller property value.
URL	URL of the target service, excluding query parameters. Optionally, you can include query parameters directly on the URL; however, the query string must be properly URL-encoded. In other words, the URL must be valid. For specifying unencoded query parameters, use URL Query Parameters. Note ⚠ The Web Service Task URL Whitelist Regular Expression Universal Controller system property specifies which URLs are supported by the Web Service task. (The default allows all URLs to be supported.) If a task instance attempts to run, but this URL does not match a URL specified by Web Service Task URL Whitelist Regular Expression, the task instance transitions to a Start Failure with an appropriate Status Description.
URL Query Parameters	Any query parameters to be encoded as a query string and appended to the URL.
HTTP Payload Type	If Protocol = HTTP(S)/REST and HTTP Method = POST, PUT, or PATCH; Type of HTTP payload. Options: - Raw - Form Data Default is Raw.

MIME Type	If Protocol = HTTP(S)/REST; MIME type of the message body. Options: - application/javascript - application/json - application/xml - text/html - text/plain - text/xml - Other... No default. Note If HTTP Payload Type = Form Data, MIME Type is automatically assigned a value of **application/x-www-form-urlencoded** and becomes read only.
Form Data	If HTTP Payload Type = Form Data; Any parameters to be encoded and added to the message body.
SOAP Payload Type	If Protocol = SOAP; Type of SOAP payload. Options: - Body - Envelope Default is Body.
SOAP Action	If Protocol = SOAP; Value of: - SOAPAction HTTP Header field in SOAP 1.1 - action parameter in SOAP 1.2
Payload Source	If HTTP Payload Type = Raw; Specification for whether the payload is defined directly in this form (task Details) or if it is a reference to a script that contains the content of the request payload. Options: - Form - Script Default is Form.
Payload	If Payload Source = Form; Request payload.

HTTP Headers	HTTP headers
SOAP Response Output	If Protocol = SOAP; Element of the SOAP response to be captured as output. Options: - Body/First Element - Body - Envelope Default is Body/First Element.
Auto Cleanup	Specification for whether or not to enable the auto clean-up of Web Service response output upon task instance completion or, if the task instance is within a workflow, when the top-level workflow instance completes.
Response Processing Details	This section contains assorted detailed information about response processing for this task.
Response Processing	Specification for how to process the response in order to determine success or failure. Options: - Default Success Status Code Range - Success Status Code Range - Failure Status Code Range - Success Output Contains - Failure Output Contains Default is Default Success Status Code Range.
Status Codes	If Response Processing = Success Status Code Range or Failure Status Code Range; Qualifying status codes. Format: 200-299,503.
Output Type	If Response Processing = Success Output Contains or Failure Output Contains; Output type that the Response Processing mechanism should assume when evaluating the output. If the expected output is XML or JSON, it is valid to specify Text. However, when specifying XML or JSON, the output must be XML or JSON, respectively; otherwise, the parsing will fail and the path expression evaluation will return no matches. Options: - Text - XML - JSON Default is Text.

Path Expression	XPath Expression (if Output Type = XML) or JSON Path Expression (if Output Type = JSON) to be used when evaluating the response output. Refer to https://www.w3schools.com/xml/xpath_intro.asp and https://github.com/json-path/JsonPath respectively for more details.
Strategy	If Output Type = XML or JSON; Strategy to take when applying the condition Operator and Value against the Path Expression matches. Options: - Match Any - Match All - Match None - Count Default is Match Any.
Operator	If Response Processing = Success Output Contains or Failure Output Contains; Condition operator to evaluate in combination with the specified condition Value. Options: - = - != - > - >= - < - <= - regex Default is =.
Value	If Response Processing = Success Output Contains or Failure Output Contains; Condition value to evaluate in combination with the specified condition Operator.
Retry Options	This section contains specifications for retrying the task.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.

Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: - All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. - Workflow conditional path processing; any Successors waiting on a failure path will not be released. - Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. - Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for task instances of the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

Actions	Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task. Events are: • Task instance status • Exit codes • Late start • Late finish • Early finish Actions are: **Abort Action**: Abort the task if certain events occur. For details, see Abort Actions. **Email Notification**: Send an email if certain events occur. For details, see Email Notification Actions. **Set Variable**: Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow. **SNMP Notification**: Send an email if certain events occur. For details, see SNMP Notification Actions. **System Operation**: Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.
Instances	Lists all instances of the task.
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.
Notes	Lists all notes associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning.

Viewing a Web Service Task Instance

When a Web Service task is launched, the Controller creates a task instance record of that task.

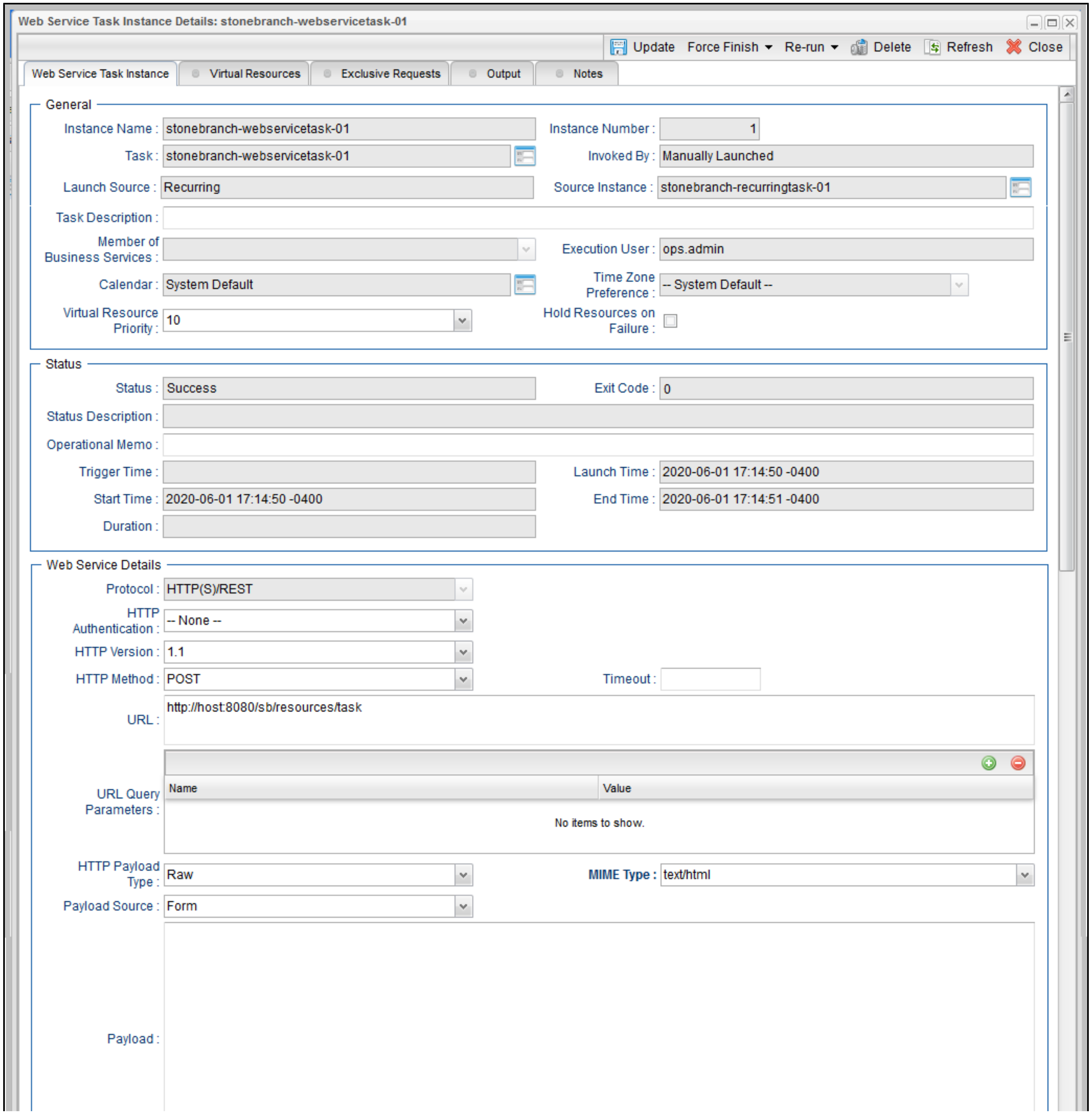
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Web Service Task Details for that task
- Activity Monitor
- Task Instances list

Web Service Task Instance Details

The following Web Service Task Instance Details contains information on the execution of the task shown in the Web Service Task Details.


Update
Force Finish
Re-run
Delete
Refresh
Close
Web Service Task Instance
Virtual Resources
Exclusive Requests
Output
Notes

Web Service Task Instance Details: stonebranch-webservicetask-01

General

Instance Name : stonebranch-webservicetask-01
Instance Number : 1
Task : stonebranch-webservicetask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Success
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-06-01 17:14:50 -0400
Start Time : 2020-06-01 17:14:50 -0400
End Time : 2020-06-01 17:14:51 -0400
Duration :

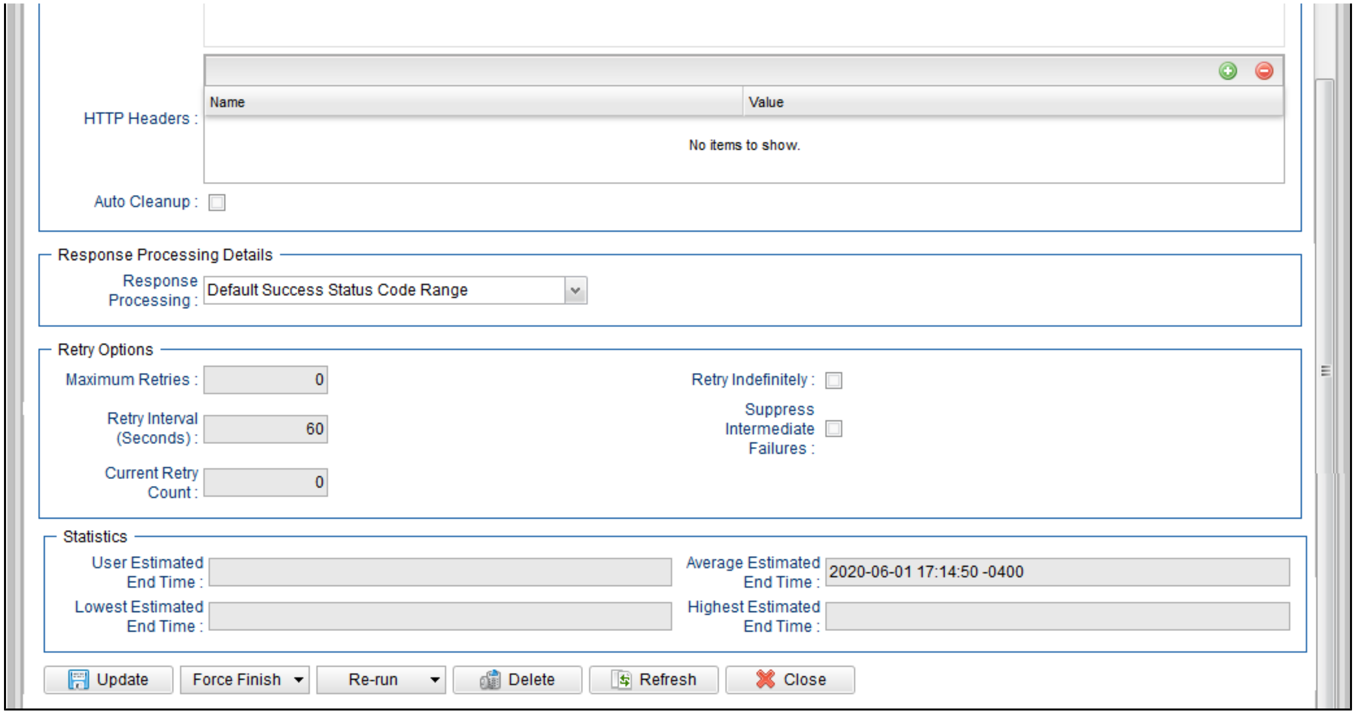
Web Service Details

Protocol : HTTP(S)/REST
HTTP Authentication : -- None --
HTTP Version : 1.1
HTTP Method : POST
Timeout :
URL : http://host:8080/sb/resources/task

URL Query Parameters :

Name	Value
No items to show.	

HTTP Payload Type : Raw
MIME Type : text/html
Payload Source : Form
Payload :



HTTP Headers :

Name	Value
No items to show.	

Auto Cleanup : ☐

Response Processing Details

Response Processing : Default Success Status Code Range

Retry Options

Maximum Retries : 0

Retry Indefinitely : ☐

Retry Interval (Seconds) : 60

Suppress Intermediate Failures : ☐

Current Retry Count : 0

Statistics

User Estimated End Time :

Average Estimated End Time : 2020-06-01 17:14:50 -0400

Lowest Estimated End Time :

Highest Estimated End Time :

Web Service Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Web Service Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.

Invoked by	System-supplied; how the task instance was launched. Options: - Trigger: (Trigger Name) Instance was launched by the named trigger. - Workflow: (Workflow Name) Instance was launched by the named workflow. - Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Launch Source	System-supplied; Source from which this Recurring task was launched. Options: - Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. - Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. - Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. - Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: - – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. - Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. - Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)

Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Trigger	Trigger, if any, on whose behalf the Task Monitor task is monitoring other tasks.
Task Instance Matched	Last task that matched the specifications of the task(s) being monitored.
Web Service Details	This section contains assorted detailed information about the task instance.
Protocol	Protocol to use for the operation. Options: • HTTP(S)/REST • SOAP Default is HTTP(S)/REST.

HTTP Authentication	HTTP authentication scheme to use. Options: - - - None - - - Basic Default is - - None - -.
Credentials	If HTTP Authentication = Basic; Credentials used when invoking the Web Service.
Credentials Variable	If HTTP Authentication = Basic; Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: ${variable name} . The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
HTTP Version	Version of the HTTP protocol to use. Options: - 1.0 - 1.1 Default is 1.1.
HTTP Method	If Protocol = HTTP(S)/REST; Type of HTTP request method to use. Options: - GET - POST - PUT - PATCH - DELETE Default is POST.

SOAP Version	If Protocol = SOAP; Version of the SOAP protocol to use. Options: - 1.1 - 1.2 Default is 1.2.
Timeout	Number of seconds to wait for the request to complete. If no value is specified, the value defaults to the Web Service Task Timeout Universal Controller property value.
URL	URL of the target service, excluding query parameters. Optionally, you can include query parameters directly on the URL; however, the query string must be properly URL-encoded. In other words, the URL must be valid. For specifying unencoded query parameters, use URL Query Parameters. Note ⚠ The Web Service Task URL Whitelist Regular Expression Universal Controller system property specifies which URLs are supported by the Web Service task. (The default allows all URLs to be supported.) If a task instance attempts to run, but this URL does not match a URL specified by Web Service Task URL Whitelist Regular Expression, the task instance transitions to a Start Failure with an appropriate Status Description.
URL Query Parameters	Any query parameters to be encoded as a query string and appended to the URL.
HTTP Payload Type	If Protocol = HTTP(S)/REST and HTTP Method = POST, PUT, or PATCH; Type of HTTP payload. Options: - Raw - Form Data Default is Raw.

MIME Type	If Protocol = HTTP(S)/REST; MIME type of the message body. Options: - application/javascript - application/json - application/xml - text/html - text/plain - text/xml - Other... No default. Note If HTTP Payload Type = Form Data, MIME Type is automatically assigned a value of **application/x-www-form-urlencoded** and becomes read only.
Form Data	If HTTP Payload Type = Form Data; Any parameters to be encoded and added to the message body.
SOAP Payload Type	If Protocol = SOAP; Type of SOAP payload. Options: - Body - Envelope Default is Body.
SOAP Action	If Protocol = SOAP; Value of: - SOAPAction HTTP Header field in SOAP 1.1 - action parameter in SOAP 1.2
Payload Source	If HTTP Payload Type = Raw; Specification for whether the payload is defined directly in this form (task Details) or if it is a reference to a script that contains the content of the request payload. Options: - Form - Script Default is Form.
Payload	If Payload Source = Form; Request payload.

HTTP Headers	HTTP headers
SOAP Response Output	If Protocol = SOAP; Element of the SOAP response to be captured as output. Options: - Body/First Element - Body - Envelope Default is Body/First Element.
Auto Cleanup	Specification for whether or not to enable the auto clean-up of Web Service response output upon task instance completion or, if the task instance is within a workflow, when the top-level workflow instance completes.
Response Processing Details	This section contains assorted detailed information about response processing for this task.
Response Processing	Specification for how to process the response in order to determine success or failure. Options: - Default Success Status Code Range - Success Status Code Range - Failure Status Code Range - Success Output Contains - Failure Output Contains Default is Default Success Status Code Range.
Status Codes	If Response Processing = Success Status Code Range or Failure Status Code Range; Qualifying status codes. Format: 200-299,503.
Output Type	If Response Processing = Success Output Contains or Failure Output Contains; Output type that the Response Processing mechanism should assume when evaluating the output. If the expected output is XML or JSON, it is valid to specify Text. However, when specifying XML or JSON, the output must be XML or JSON, respectively; otherwise, the parsing will fail and the path expression evaluation will return no matches. Options: - Text - XML - JSON Default is Text.

Path Expression	XPath Expression (if Output Type = XML) or JSON Path Expression (if Output Type = JSON) to be used when evaluating the response output. Refer to https://www.w3schools.com/xml/xpath_intro.asp and https://github.com/json-path/JsonPath respectively for more details.
Strategy	If Output Type = XML or JSON; Strategy to take when applying the condition Operator and Value against the Path Expression matches. Options: - Match Any - Match All - Match None - Count Default is Match Any.
Operator	If Response Processing = Success Output Contains or Failure Output Contains; Condition operator to evaluate in combination with the specified condition Value. Options: - = - != - > - >= - < - <= - regex Default is =.
Value	If Response Processing = Success Output Contains or Failure Output Contains; Condition value to evaluate in combination with the specified condition Operator.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.

Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task. If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.
Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day. Valid values:

- -- None --
    - If
      Wait To Start
      = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
    - If
      Wait To Start
      = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
- Same Day
  Do not advance day.
- Next Day
  Advance to the next day.
- Next Business Day
  Advance to the next business day.
- Sunday
  If today is not Sunday, advance to next Sunday.
- Monday
  If today is not Monday, advance to next Monday.
- Tuesday
  If today is not Tuesday, advance to next Tuesday.
- Wednesday
  If today is not Wednesday, advance to next Wednesday.
- Thursday
  If today is not Thursday, advance to next Thursday.
- Friday
  If today is not Friday, advance to next Friday.
- Saturday
  If today is not Saturday, advance to next Saturday.

Default is – None --.

If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.

Valid values:

	- -- None --
	  - If
	    Wait To Start
	    = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If
	    Wait To Start
	    = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day
	  Do not advance day.
	- Next Day
	  Advance to the next day.
	- Next Business Day
	  Advance to the next business day.
	- Sunday
	  If today is not Sunday, advance to next Sunday.
	- Monday
	  If today is not Monday, advance to next Monday.
	- Tuesday
	  If today is not Tuesday, advance to next Tuesday.
	- Wednesday
	  If today is not Wednesday, advance to next Wednesday.
	- Thursday
	  If today is not Thursday, advance to next Thursday.
	- Friday
	  If today is not Friday, advance to next Friday.
	- Saturday
	  If today is not Saturday, advance to next Saturday.
	
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task. If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task. If Wait To Start = Seconds; Number of seconds to wait before starting the task.

Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task. If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task. If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Retry Options	This section contains specifications for retrying the task.

Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.

CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.

After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task.

Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: - Re-run - Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (`ops_exclusive_order`) for this task instance.
Notes	Lists all notes associated with this record.

Running a Web Service Task

You can run a Web Service task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the Web Service Tasks list or Web Service Task Details Action menu.

- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Recurring Task

- Overview
- Built-In Variables
- Creating a Recurring Task
    - Recurring Task Details
    - Recurring Task Details Field Descriptions
- Viewing a Recurring Task Instance
    - Recurring Task Instance Details
    - Recurring Task Instance Details Field Descriptions
- Running a Recurring Task
- Monitoring Task Execution

Overview

The Recurring Task allows you to specify a target task, of any task type, along with recurrence options, to control when and how many times the target task is launched by that Recurring task.

Built-In Variables

The following built-in variables can be used in a Recurring task to pass data where appropriate:

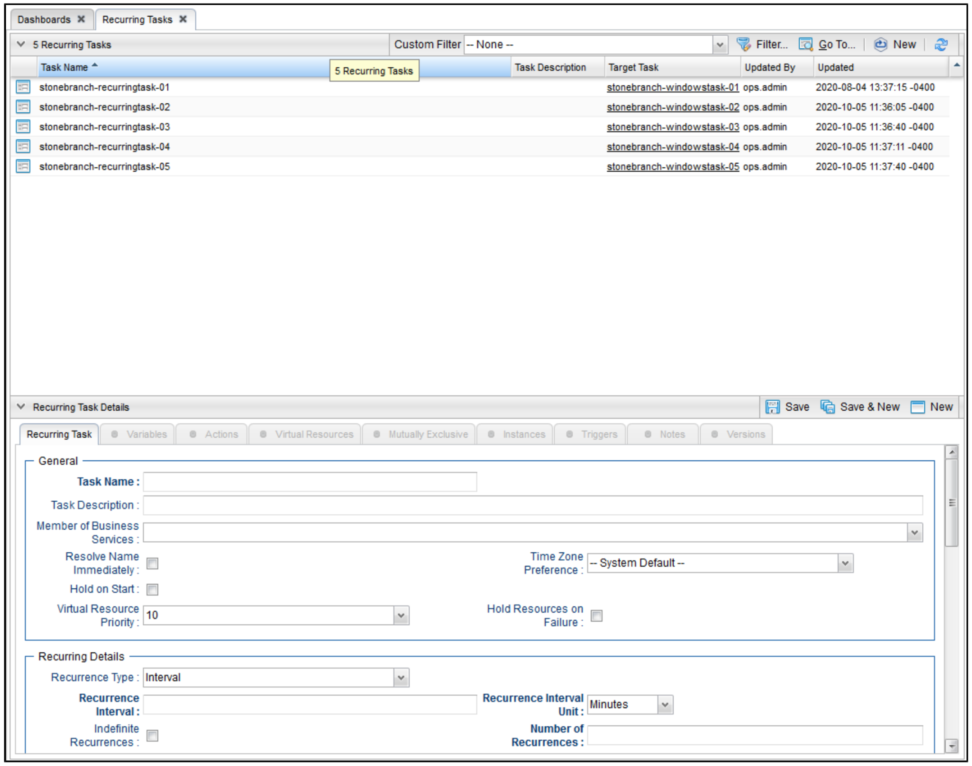
- Task Instance variables
- Recurring Task Instance variables

Creating a Recurring Task

Step 1

From the Automation Center navigation pane, select **Tasks > Recurring Tasks**. The Recurring Tasks list displays a list of all currently defined Recurring tasks.

Below the list, Recurring Task Details for a new Recurring task displays.


Dashboards
Recurring Tasks
5 Recurring Tasks
Custom Filter
Filter...
Go To...
New
5 Recurring Tasks
Recurring Task Details
Save
Save & New
New
Recurring Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Recurring Details

Custom Filter: -- None --

Task Name	Task Description	Target Task	Updated By	Updated
stonebranch-recurringtask-01		stonebranch-windowstask-01	ops.admin	2020-08-04 13:37:15 -0400
stonebranch-recurringtask-02		stonebranch-windowstask-02	ops.admin	2020-10-05 11:36:05 -0400
stonebranch-recurringtask-03		stonebranch-windowstask-03	ops.admin	2020-10-05 11:36:40 -0400
stonebranch-recurringtask-04		stonebranch-windowstask-04	ops.admin	2020-10-05 11:37:11 -0400
stonebranch-recurringtask-05		stonebranch-windowstask-05	ops.admin	2020-10-05 11:37:40 -0400

Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Recurrence Type : Interval
Recurrence Interval :
Recurrence Interval Unit : Minutes
Indefinite Recurrences : ☐
Number of Recurrences :

Step 2

Enter/select Details for a new Recurring task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

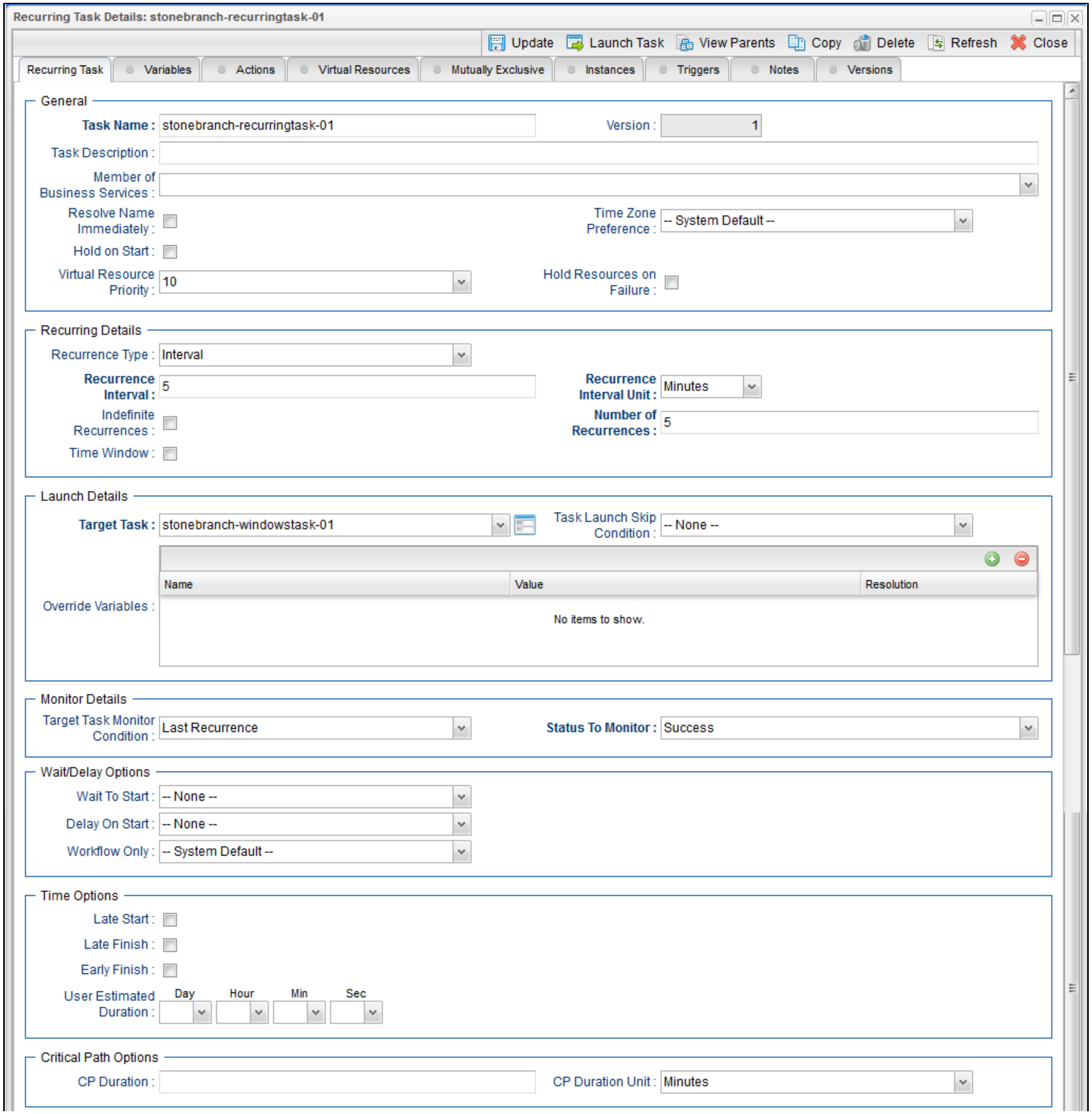
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Recurring Task Details

The following Recurring Task Details is for an existing Recurring task.

Depending on the values that you enter / select for these fields, and whether or not the Recurring task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Recurring Task Details.


Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Recurring Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

Recurring Task Details: stonebranch-recurringtask-01

General

Task Name : stonebranch-recurringtask-01

Version : 1

Task Description :

Member of Business Services :

Resolve Name Immediately : ☐

Time Zone Preference : -- System Default --

Hold on Start : ☐

Virtual Resource Priority : 10

Hold Resources on Failure : ☐

Recurring Details

Recurrence Type : Interval

Recurrence Interval : 5

Recurrence Interval Unit : Minutes

Indefinite Recurrences : ☐

Number of Recurrences : 5

Time Window : ☐

Launch Details

Target Task : stonebranch-windowstask-01

Task Launch Skip Condition : -- None --

Override Variables :

Name	Value	Resolution
No items to show.		

Monitor Details

Target Task Monitor Condition : Last Recurrence

Status To Monitor : Success

Wait/Delay Options

Wait To Start : -- None --

Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

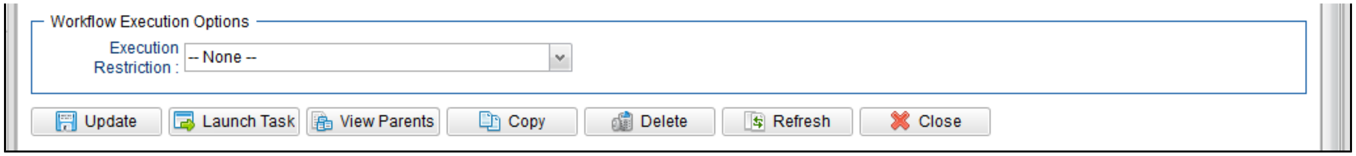
Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes



Recurring Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Recurring Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.

Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Recurring Details	This section contains assorted detailed information about the task.
Recurrence Type	Type of recurrence. Valid values: • Interval Recurrence will occur on the interval specified by Recurrence Interval, Recurrence Interval Unit, and/or Indefinite Recurrences / Number of Recurrences. • On Recurrence will occur on the day and time specified in Recurrence Time List.
Recurrence Time List	If Recurrence Type = On; List of Times and Days on which runs of the Target Task will recur.
Recurrence Interval	Amount of time to wait - based on the time unit specified in Recurrence Interval Unit - between runs of the specified Target Task. The default value, as specified in the Recurring Task Minimum Frequency In Seconds Universal Controller system property, is 5 (seconds). The minimum value is 0.
Recurrence Interval Unit	Units of time to wait - based on the time specified in Recurrence Interval - between runs of the specified Target Task. Options: • Seconds • Minutes • Hours
Indefinite Recurrences	Indication that the recurrence of runs for the specified Target Task will occur indefinitely.
Number of Recurrences	If Indefinite Occurrences is not selected; Number of times that runs of the specified Target Task will occur.

Time Window	If Indefinite Occurrences is not selected; Number of runs of the specified Target Task that will occur within a specified time frame.
Interval Start Time (HH:MM)	If Time Window is selected; Starting time of day that runs of the specified Target Task will occur.
Interval End Time (HH:MM)	If Time Window is selected; Ending time of day that runs of the specified Target Task will recur.
Interval Start Day Constraint	If Time Window is selected; Specification for whether or not to advance the start day of the recurrence to another day. Valid values: • -- None -- Advance to the next day if the Interval Start Time is after the time of the current day. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. Default is – None --.

Interval End Day Constraint	If Time Window is selected; Specification for whether or not to advance the end day of the recurrence to another day. Valid values: - -- None -- Advance to the next day if the Interval Start Time is after the time of the current day. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. Default is – None --.
Launch Details	This section contains information about the target task being launched.
Target Task	Name of the task for which you want to specify recurrence details. Click the icon to display Task Details for the task.
Task Launch Skip Condition	User-defined; Controls when launching a target task for recurrence will be skipped. The Recurring Task Launch Skip Condition Default Universal Controller system property value is used as the default value for this field. Options: - None Do not skip the target task launch. - Active Skip the target task launch if there are any target task instances running. - Active By Recurring Task Instance Skips the target task launch if there are any target task instances running for the same Recurring task.

Override Variables	List of task variables to override.
	- Name
	Name of the variable to override.
	- Value
	Value of the variable to override.
	- Resolution
	Type of resolution for the override:
	  - Disabled
	  Variable is passed to the launched Target Task unresolved and will remain unresolved in the Recurring Task Instance Details.
	  - Enabled
	  Variable is resolved when the Recurring Task Instance is started (running); therefore, it is passed to the launched Target Task resolved and will remain resolved in the Recurring Task Instance Details. If an Enabled variable cannot be resolved when the Recurring Task Instance is being started, the Recurring Task Instance will transition to a Start Failure with the following Status Description: Override Variable "*variable-name*" with Resolution "*variable-resolution*" is unresolved.
	  - Enabled Every Recurrence
	  Variable is resolved and passed each time the Target Task is being launched and will remain unresolved in the Recurring Task Instance Details.

Monitor Details	This section contains specifications for monitoring the target task.
Target Task Monitor Condition	Specification for which target task instance(s) will be monitored. Options: - --None-- - First Recurrence - Last Recurrence - All Recurrences
Status To Monitor	If Target Task Monitor Condition is not --None--; Status being monitored for. When the target task instance(s) being monitored go to the status specified here, the Recurring Task Instance will complete successfully. Options: - Finished - Success - Skipped
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.

Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.

Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start= Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for task instances of the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.

Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: - -- None -- No restriction for this task. - Run Restriction for when this task will be run. - Skip Restriction for when this task will be skipped. - Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: - – None – No period of restriction for this task. - Before Restriction is valid if the date is before the Before Date value. - After Restriction is valid if the date is after the After Date value. - Span Restriction is valid if the date is before the Before Date value and after After Date value. - On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.

Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.

<table>
<tr><td>Copy</td><td>Creates a copy of this task, which you are prompted to rename.</td></tr>
<tr><td>Delete</td><td>Deletes the current record.
Note
You cannot delete a task if it is either:
- Specified in an enabled Trigger.
- The only task specified in a disabled Trigger.</td></tr>
<tr><td>Refresh</td><td>Refreshes any dynamic data displayed in the Details.</td></tr>
<tr><td>Close</td><td>For pop-up view only; closes the pop-up view of this task.</td></tr>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.</td></tr>
<tr><td>Variables</td><td>Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.</td></tr>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.
Events are:
- Task instance status
- Exit codes
- Late start
- Late finish
- Early finish
Actions are:
<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table>
</td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.
If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
</table>

Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.
Instances	Lists all instances of the task.
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.
Notes	Lists all notes associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning.

Viewing a Recurring Task Instance

When a Recurring task is launched, the Controller creates a task instance record of that task.

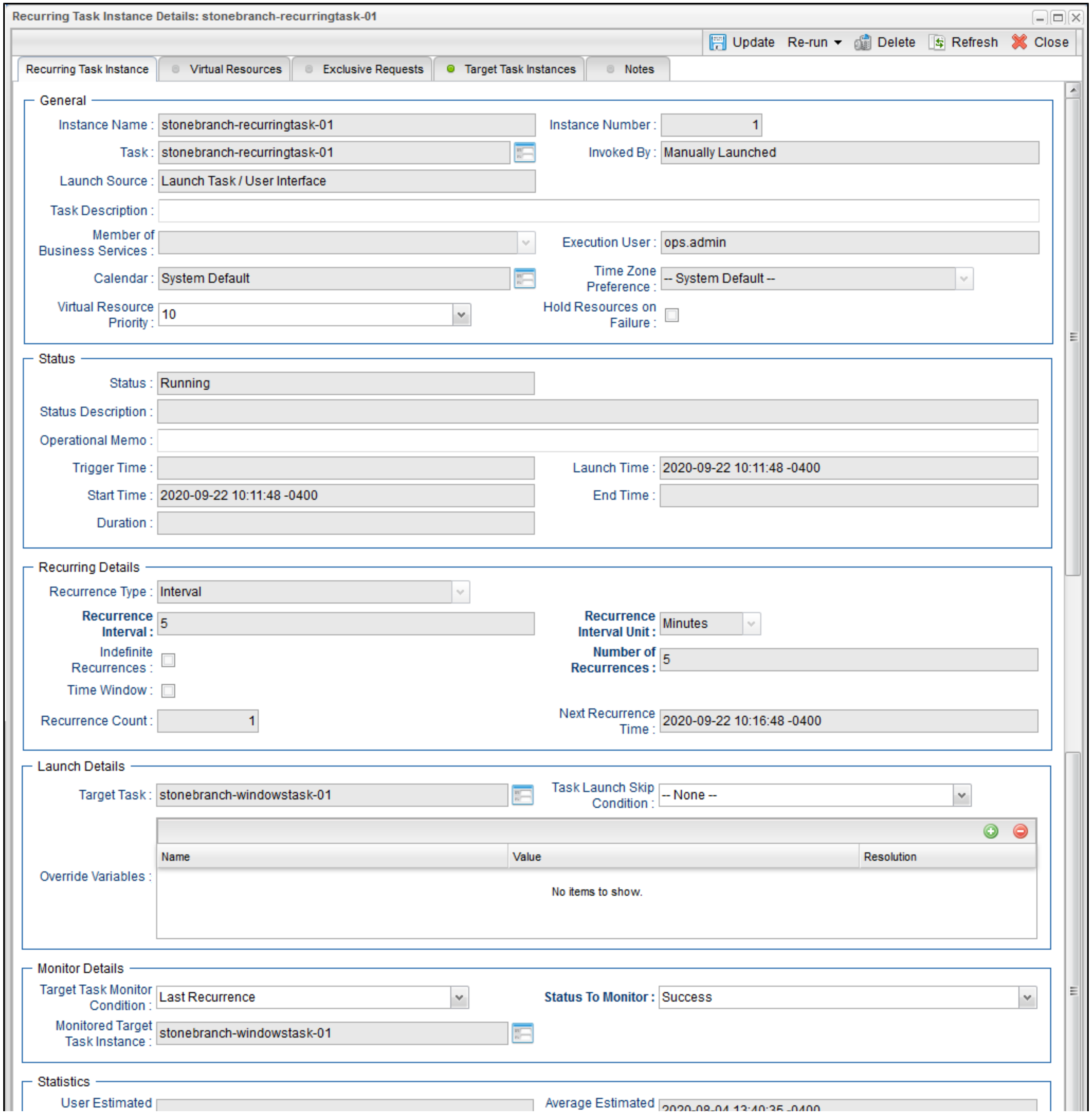
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Recurring Task Details for that task
- Activity Monitor
- Task Instances list

Recurring Task Instance Details

The following Recurring Task Instance Details contains information on the execution of the task shown in the Recurring Task Details.


Recurring Task Instance Details: stonebranch-recurringtask-01
Update
Re-run
Delete
Refresh
Close
Recurring Task Instance
Virtual Resources
Exclusive Requests
Target Task Instances
Notes

General

Instance Name : stonebranch-recurringtask-01

Instance Number : 1

Task : stonebranch-recurringtask-01

Invoked By : Manually Launched

Launch Source : Launch Task / User Interface

Task Description :

Member of Business Services :

Execution User : ops.admin

Calendar : System Default

Time Zone Preference : -- System Default --

Virtual Resource Priority : 10

Hold Resources on Failure : ☐

Status

Status : Running

Status Description :

Operational Memo :

Trigger Time :

Launch Time : 2020-09-22 10:11:48 -0400

Start Time : 2020-09-22 10:11:48 -0400

End Time :

Duration :

Recurring Details

Recurrence Type : Interval

Recurrence Interval : 5

Recurrence Interval Unit : Minutes

Indefinite Recurrences : ☐

Number of Recurrences : 5

Time Window : ☐

Recurrence Count : 1

Next Recurrence Time : 2020-09-22 10:16:48 -0400

Launch Details

Target Task : stonebranch-windowstask-01

Task Launch Skip Condition : -- None --

Override Variables :

Name	Value	Resolution
No items to show.		

Monitor Details

Target Task Monitor Condition : Last Recurrence

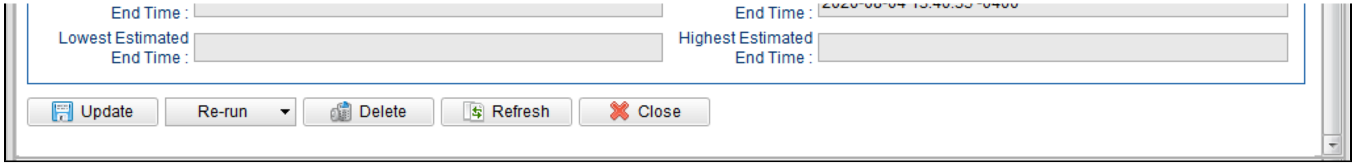
Status To Monitor : Success

Monitored Target Task Instance : stonebranch-windowstask-01

Statistics

User Estimated

Average Estimated 2020-08-04 13:40:35 -0400



Recurring Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Recurring Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Launch Source	System-supplied; Source from which this Recurring task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.

Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Recurring Details	This section contains assorted detailed information about the task instance.
Recurrence Type	Type of recurrence. Valid values: • Interval Recurrence will occur on the interval specified by Recurrence Interval, Recurrence Interval Unit, and/or Indefinite Recurrences / Number of Recurrences. • On Recurrence will occur on the day and time specified in Recurrence Time List.
Recurrence Time List	If Recurrence Type = On; List of Times and Days on which runs of the Target Task will recur.
Computed Recurrence Time List	If Recurrence Type = On; List of computed Days and Times on which runs of the Target Task will recur. The corresponding recurrence Time and Day Constraint, from the Recurrence Time List, displays for each Computed Recurrence Time. Skipped recurrence times will be marked as (Skipped).
Recurrence Interval	Amount of time to wait - based on the time unit specified in Recurrence Interval Unit - between runs of the specified Target Task. The default value, as specified in the Recurring Task Minimum Frequency In Seconds Universal Controller system property, is 5 (seconds). The minimum value is 0.

Recurrence Interval Unit	Units of time to wait - based on the time specified in Recurrence Interval - between runs of the specified Target Task. Options: • Seconds • Minutes • Hours
Indefinite Recurrences	Indication that the recurrence of runs for the specified Target Task will occur indefinitely.
Number of Recurrences	If Indefinite Occurrences is not selected; Number of times that runs of the specified Target Task will occur.
Time Window	If Indefinite Occurrences is not selected; Number of runs of the specified Target Task that will occur within a specified time frame.
Interval Start Time (HH: MM)	If Time Window is selected; Starting time of day that runs of the specified Target Task will occur.
Interval End Time (HH: MM)	If Time Window is selected; Ending time of day that runs of the specified Target Task will recur.

Interval Start Day Constraint	If Time Window is selected; Specification for whether or not to advance the start day of the recurrence to another day. Valid values: • -- None -- Advance to the next day if the Interval Start Time is after the time of the current day. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. Default is – None --.

Interval End Day Constraint	If Time Window is selected; Specification for whether or not to advance the end day of the recurrence to another day. Valid values: - -- None -- Advance to the next day if the Interval Start Time is after the time of the current day. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. Default is – None --.
Recurrence Count	Current number of runs of the Target Task that have recurred.
Next Recurrence Time	Date and time when the next run of the Target Task will recur.
Computed Interval Start	If Recurrence Type is Interval and Time Window is selected; Computed time at which the interval has been designated as starting at (it can be in the past).
Computed Interval End	If Recurrence Type is Interval and Time Window is selected; Computed time at which the interval will end.
Launch Details	This section contains information about the target task being launched.
Target Task	Name of the task for which you want to specify recurrence details. Click the icon to display Task Details for the task.

Task Launch Skip Condition	User-defined; Controls when launching a target task for recurrence will be skipped. The Recurring Task Launch Skip Condition Default Universal Controller system property value is used as the default value for this field. Options: • None Do not skip the target task launch. • Active Skip the target task launch if there are any target task instances running. • Active By Recurring Task Instance Skips the target task launch if there are any target task instances running for the same Recurring task.

Override Variables	List of task variables to override.
	• Name
	Name of the variable to override.
	• Value
	Value of the variable to override.
	• Resolution
	Type of resolution for the override:
	  • Disabled
	  Variable is passed to the launched Target Task unresolved and will remain unresolved in the Recurring Task Instance Details.
	  • Enabled
	  Variable is resolved when the Recurring Task Instance is started (running); therefore, it is passed to the launched Target Task resolved and will remain resolved in the Recurring Task Instance Details. If an Enabled variable cannot be resolved when the Recurring Task Instance is being started, the Recurring Task Instance will transition to a Start Failure with the following Status Description: Override Variable "*variable-name*" with Resolution "*variable-resolution*" is unresolved.
	  • Enabled Every Recurrence
	  Variable is resolved and passed each time the Target Task is being launched and will remain unresolved in the Recurring Task Instance Details.

Monitor Details	This section contains specifications for monitoring the target task.
Target Task Monitor Condition	Specification for which target task instance(s) will be monitored. Options: • --None-- • First Recurrence • Last Recurrence • All Recurrences
Status To Monitor	If Target Task Monitor Condition is not --None--; Status being monitored for. When the target task instance(s) being monitored go to the status specified here, the Recurring Task Instance will complete successfully. Options: • Finished • Success • Skipped

Monitored Target Task Instance	System-supplied, Read only; If there is more than one target task instance to monitor (for example, when using a Broadcast Cluster), the Monitored Target Task Instance(s) field is shown instead with a list of monitored target task instances.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Retry Options	This section contains specifications for retrying the task.

Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.

CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.

After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task.

Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (`ops_exclusive_order`) for this task instance.
Target Task Instances	All instances of the Target Task launched by the Recurring Task.
Notes	Lists all notes associated with this record.

Running a Recurring Task

You can run a Recurring task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the Recurring Tasks list or Recurring Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Task Monitor Task

- Overview
- Built-In Variables
- Processing Flow for Task Monitors
    - Launching a Task Monitor Task Within a Workflow
    - Launching a Task Monitor Task Using a Task Monitor Trigger
    - Launching a Task Monitor Task Manually or Via Other Trigger
- Creating a Task Monitor Task
    - Task Monitor Task Details
    - Task Monitor Task Details Field Descriptions
- Viewing a Task Monitor Task Instance
    - Task Monitor Task Instance Details
    - Task Monitor Task Instance Details Field Descriptions
- Viewing Potential Matches for a Running Task Monitor Task Instance
- Monitoring Task Execution
- Understanding Relative Time Scope

Overview

The Task Monitor task monitors another task or tasks for one or more specific statuses.

When setting up a Task Monitor task, you can monitor:

- All tasks
- Specific task
- Task type, such as a Windows task
- Group of tasks based on the name, such as all tasks whose name contains the string **DEV**

You also can monitor for any combination of task statuses.

For example, you can monitor for:

- All tasks with a status of RESOURCE WAIT or UNDELIVERABLE
- All Windows tasks in a FAILED status
- All tasks whose name contains **REPORT** that have a status of SUCCESS.

For Task Monitors within a workflow, you can also specify a Time Scope, or window of time, during which the event being monitored for must be satisfied.

Built-In Variables

The following built-in variables can be used in a Task Monitor task to pass data where appropriate:

- Task Instance variables
- Task Monitor Task variables

Processing Flow for Task Monitors

The processing on a Task Monitor may differ depending on which of the following methods was used to launch it:

- Launched by a workflow
- Launched by a Task Monitor trigger
- Launched manually or by another trigger

Each method is described in detail below.

Note

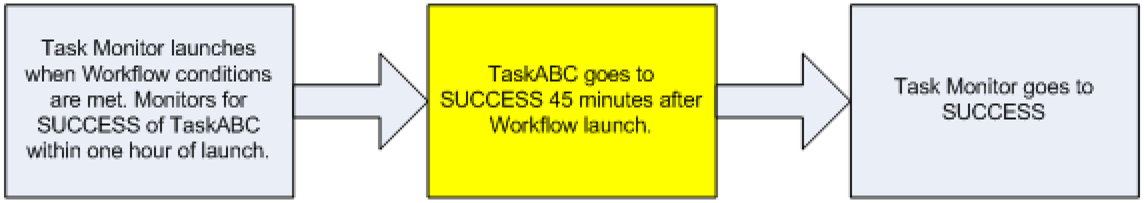
Any changes made to a Task Monitor task are not recognized by its respective Triggers until those Triggers are disabled and re-enabled.

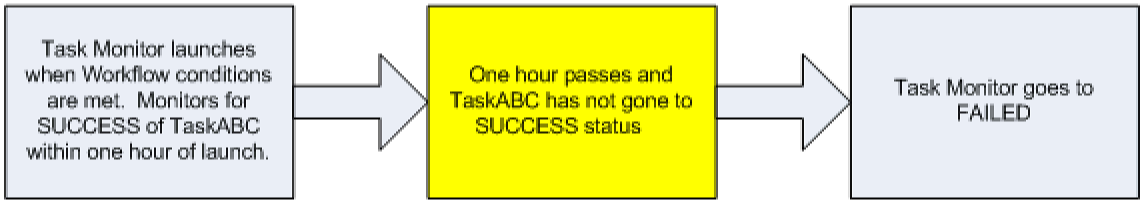
Launching a Task Monitor Task Within a Workflow

Within a Workflow, the Task Monitor task launches like any other task in the Workflow; that is, whenever the Workflow conditions warrant it. The Task Monitor runs until one of the conditions described below occurs:

- When the conditions specified in the Task Monitor are met, the Task Monitor goes to a status of SUCCESS.
- When the time window specified in the Task Monitor passes and the conditions in the Task Monitor are not met, the Task Monitor goes to a status of FAILED. If the time window is entirely in the past and Universal Controller does not locate the required event in the Activity table when the Task Monitor launches, the Task Monitor goes immediately to a FAILED status.
- If no time window is specified in the Task Monitor and the Task Monitor conditions are not met, the Task Monitor task continues running.
- A user can manually force finish the Task Monitor task.

The following diagram illustrates how a Task Monitor might go to SUCCESS and FAILED status within a workflow.

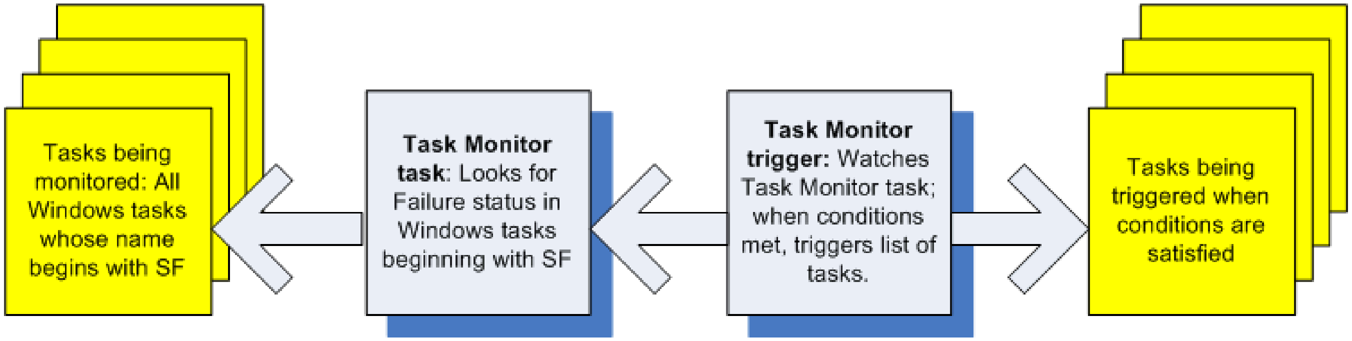

Task Monitor launches when Workflow conditions are met. Monitors for SUCCESS of TaskABC within one hour of launch.
TaskABC goes to SUCCESS 45 minutes after Workflow launch.
Task Monitor goes to SUCCESS


Task Monitor launches when Workflow conditions are met. Monitors for SUCCESS of TaskABC within one hour of launch.
One hour passes and TaskABC has not gone to SUCCESS status
Task Monitor goes to FAILED

Launching a Task Monitor Task Using a Task Monitor Trigger

The Task Monitor task launches when the user enables the Task Monitor trigger. Each time the conditions in the Task Monitor task are satisfied, the tasks specified in the trigger are launched. This process continues until a user disables the associated Task Monitor trigger.

The following diagram shows an example of how you might set up a task monitoring scheme using the Task Monitor task and Task Monitor trigger.


Tasks being monitored: All Windows tasks whose name begins with SF
Task Monitor task: Looks for Failure status in Windows tasks beginning with SF
Task Monitor trigger: Watches Task Monitor task; when conditions met, triggers list of tasks.
Tasks being triggered when conditions are satisfied

Launching a Task Monitor Task Manually or Via Other Trigger

If you manually launch a Task Monitor task or launch it using a trigger other than a Task Monitor trigger, such as a Time trigger, the task continues running until its specified conditions are met. When that occurs, the Task Monitor goes to SUCCESS. No other processing occurs unless you have configured notifications with the task or set up some other task(s) to launch based on the status of this task.

The Task Monitor runs until one of the conditions described below occurs:

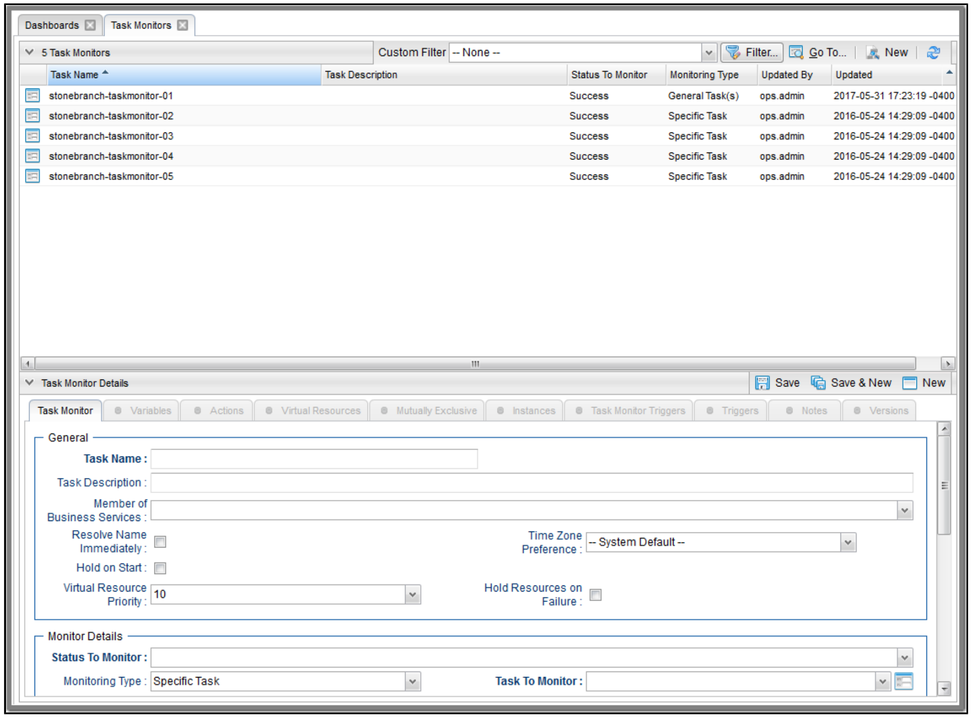
- When the time window specified in the Task Monitor passes and the conditions in the Task Monitor are not met, the Task Monitor goes to a status of FAILED. If the time window is entirely in the past and the Controller does not locate the required event in the Activity table when the Task Monitor launches, the Task Monitor goes immediately to a FAILED status.
- If no time window is specified in the Task Monitor and the Task Monitor conditions are not met, the Task Monitor task continues running.

Creating a Task Monitor Task

Step 1

From the Automation Center navigation pane, select **Tasks > Task Monitor Tasks**. The Task Monitor Tasks list displays a list of all currently defined Task Monitor tasks.

Below the list, Task Monitor Task Details for a new Task Monitor task displays.



5 Task Monitors

Custom Filter: -- None --

Task Name	Task Description	Status To Monitor	Monitoring Type	Updated By	Updated
stonebranch-taskmonitor-01		Success	General Task(s)	ops.admin	2017-05-31 17:23:19 -0400
stonebranch-taskmonitor-02		Success	Specific Task	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-taskmonitor-03		Success	Specific Task	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-taskmonitor-04		Success	Specific Task	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-taskmonitor-05		Success	Specific Task	ops.admin	2016-05-24 14:29:09 -0400

Task Monitor Details

General

Task Name :

Task Description :

Member of Business Services :

Resolve Name Immediately : ☐

Time Zone Preference : -- System Default --

Hold on Start : ☐

Virtual Resource Priority : 10

Hold Resources on Failure : ☐

Monitor Details

Status To Monitor :

Monitoring Type : Specific Task

Task To Monitor :

Step 2

Enter/select Details for a new Task Monitor task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

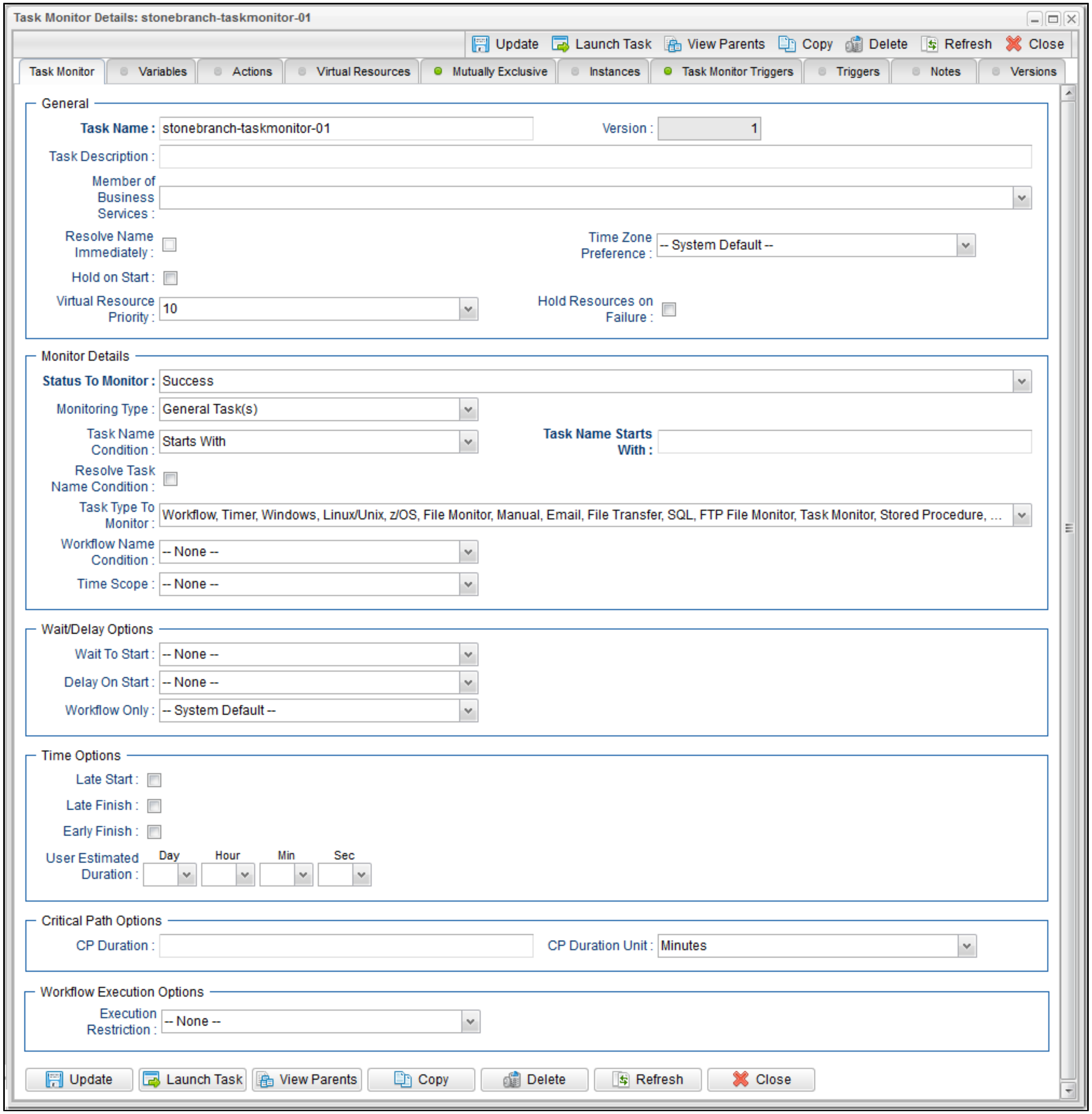
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Task Monitor Task Details

The following Task Monitor Task Details is for an existing Task Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Task Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Task Monitor Task Details.


Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Task Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Task Monitor Triggers
Triggers
Notes
Versions
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close

Task Monitor Details: stonebranch-taskmonitor-01

General

Task Name : stonebranch-taskmonitor-01
Version : 1
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Monitor Details

Status To Monitor : Success
Monitoring Type : General Task(s)
Task Name Condition : Starts With
Task Name Starts With :
Resolve Task Name Condition : ☐
Task Type To Monitor : Workflow, Timer, Windows, Linux/Unix, z/OS, File Monitor, Manual, Email, File Transfer, SQL, FTP File Monitor, Task Monitor, Stored Procedure, ...
Workflow Name Condition : -- None --
Time Scope : -- None --

Wait/Delay Options

Wait To Start : -- None --
Delay On Start : -- None --
Workflow Only : -- System Default --

Time Options

Late Start : ☐
Late Finish : ☐
Early Finish : ☐
User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :
CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

Task Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Task Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.

Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Task Monitor Details	This section contains assorted detailed information about the task.
Status To Monitor	Status being monitored for. When the task being monitored goes to a status specified in this field, the associated trigger is satisfied and the tasks specified in the trigger launch. You can specify as many statuses as needed (see Task Statuses).
Monitoring Type	Specifies which task or tasks are being monitored. Options: • Specific Task - One task is being monitored. Use the Task to Monitor field to specify the task name. • General Tasks - Allows you to specify selection parameters that determine which task or tasks to be monitored. Use the Task Name Condition and Task Type to Monitor fields to create your selection parameters.
Task to Monitor	If Monitoring Type = Specific Task; specifies the task to monitor. Enter a task name or select a task from the drop-down list. To display details about a task on the list, select it and then click the Task To Monitor icon.
Task Name Condition	If Monitoring Type = General Task(s); specifies a type of condition for the name of tasks being monitored for. If you select a condition type, a corresponding field displays that allows you to enter a value for that condition. Only tasks meeting the specified condition value will be monitored for. Options: • - - None - - • Equals • Starts With • Contains • Ends With
Task Type to Monitor	If Monitoring Type = General Tasks; allows you to define specific task types to monitor for. For example, to monitor all SQL tasks, you would select Monitoring Type = General Tasks, then select Task Type to Monitor = SQL Tasks.
Task Name Starts With	Required if Task Name Condition = Starts With; Character string at the start of the name of a task or tasks being monitored for.
Task Name Contains	Required if Task Name Condition = Contains; Character string in the name of a task or tasks being monitored for.

Task Name Ends With	Required if Task Name Condition = Ends With; Character string at the end of the name of a task or tasks being monitored for.
Task Name Equals	Required if Task Name Condition = Equals; Character string equaling the name of a task or tasks being monitored for.
Resolve Task Name Condition	If Monitoring Type = Generals Task(s) and Task Name Condition = Starts With, Contains, Ends With, or Equals; Specification (true or false) for whether or not to resolve at run time any variables in the task name of the task(s) being monitored. Default is false.
Workflow Name Condition	Type of condition for the name of a workflow or workflows containing the task being monitored for. If you select a condition type, a corresponding field displays that allows you to enter a value for that condition. Only tasks in workflows meeting the specified condition value will be monitored for. Options: • - - None - - • Equals • Starts With • Contains • Ends With
Workflow Name Equals	Optional if Workflow Name Condition = Equals; Exact name of a workflow or workflows containing the task being monitored for. If the field is blank, the Task Monitor will consider a Task Instance for a match only if the Task Instance is not contained within a workflow.
Workflow Name Starts With	Required if Workflow Name Condition = Starts With; Character string at the start of the name of a workflow or workflows containing the task being monitored for.
Workflow Name Contains	Required if Workflow Name Condition = Contains; Character string in the name of a workflow or workflows containing the task being monitored for.
Workflow Name Ends With	Required if Workflow Name Condition = Ends With; Character string at the end of the name of a workflow or workflows containing the task being monitored for.
Time Scope	Used for Task Monitor tasks not associated with a trigger. The Time Scope fields are used to create a window during which the Task Monitor conditions must be met in order for the Task Monitor to be satisfied. The Time Scope window is always relative to the time that the Task Monitor launched. For example, if you put -01:00 in the From time field and 02:00 in the To time field, the window's begin time is one hour before the Task Monitor is launched and its end time is two hours after it is launched. Note For additional details, see Understanding Relative Time Scope, below.

From [+/-]hh: mm:	If Time Scope = Relative; used for Task Monitor tasks not associated with a trigger. Together with the Time Scope To field, it allows you to specify a window of time, relative to the time the Task Monitor task launched, during which the conditions of the Task Monitor must be met. If the conditions are not met within the specified window, the Task Monitor task goes to a FAILED status. If you specify a past time in the this field, as soon as the Task Monitor task launches, the Controller searches the Activity table for past events that match the specified conditions. If the conditions are satisfied already, the Task Monitor task goes immediately to SUCCESS status. Otherwise, the Controller continues monitoring until the conditions are met or until the To time has passed.
To [+/-]hh: mm:	If Time Scope = Relative; used for Task Monitor tasks not associated with a trigger. Together with the Time Scope From field, it allows you to specify a window of time, relative to the time the Task Monitor task launched, during which the conditions of the Task Monitor must be met. If the conditions are not met within the specified window, the Task Monitor task goes to a FAILED status. If the conditions in the Task Monitor task are met before the Time Scope To time arrives, the Task Monitor task goes to SUCCESS. If the conditions are not met by the Time Scope To time, the Task Monitor task goes to FAILED status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day
	Do not advance day.
	- Next Day
	Advance to the next day.
	- Next Business Day
	Advance to the next business day.
	- Sunday
	If today is not Sunday, advance to next Sunday.
	- Monday
	If today is not Monday, advance to next Monday.
	- Tuesday
	If today is not Tuesday, advance to next Tuesday.
	- Wednesday
	If today is not Wednesday, advance to next Wednesday.
	- Thursday
	If today is not Thursday, advance to next Thursday.
	- Friday
	If today is not Friday, advance to next Friday.
	- Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: - – None – - Duration - Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: - - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) - Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. - No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for task instances of the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note ⚠ You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

Actions	Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task. Events are: • Task instance status • Exit codes • Late start • Late finish • Early finish Actions are:

Abort Action	Abort the task if certain events occur. For details, see Abort Actions.
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions.
Set Variable	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions.
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.

Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.
Instances	Lists all instances of the task.
Task Monitor Triggers	Lists all Task Monitor triggers that reference this task in the Task Monitor field of the trigger Details; that is, a list of all Task Monitor triggers that execute this task. For instructions on creating triggers, see Triggers.
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.
Notes	Lists all notes associated with this record.

Versions	Stores copies of all previous versions of the current record. See Record Versioning.

Viewing a Task Monitor Task Instance

When a Task Monitor task is launched, the Controller creates a task instance record of that task.

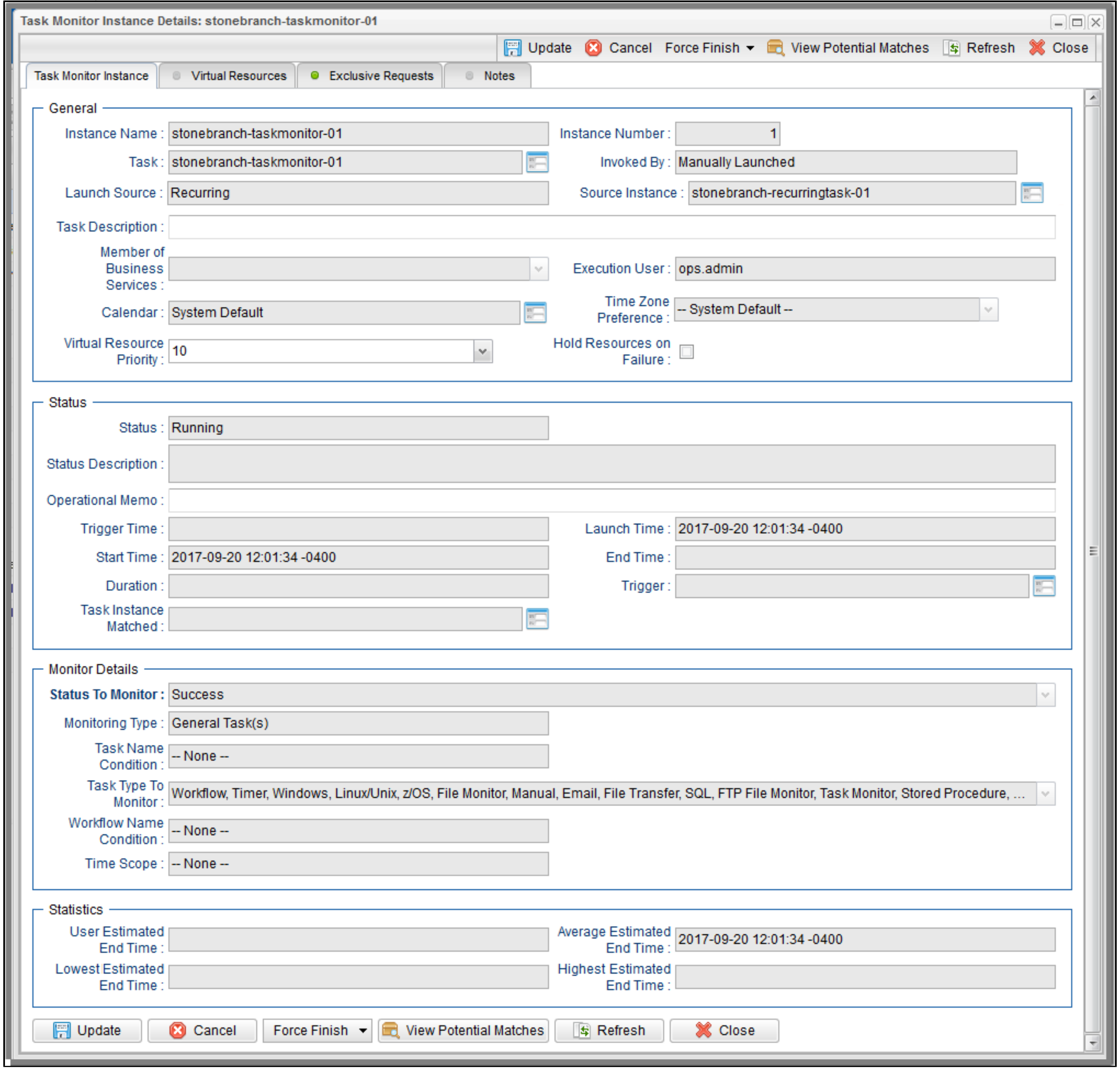
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Task Monitor Task Details for that task
- Activity Monitor
- Task Instances list

Task Monitor Task Instance Details

The following Task Monitor Task Instance Details contains information on the execution of the task shown in the Task Monitor Task Details.


Task Monitor Instance Details: stonebranch-taskmonitor-01
Update
Cancel
Force Finish
View Potential Matches
Refresh
Close
Task Monitor Instance
Virtual Resources
Exclusive Requests
Notes

General

Instance Name : stonebranch-taskmonitor-01
Instance Number : 1
Task : stonebranch-taskmonitor-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Running
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2017-09-20 12:01:34 -0400
Start Time : 2017-09-20 12:01:34 -0400
End Time :
Duration :
Trigger :
Task Instance Matched :

Monitor Details

Status To Monitor : Success
Monitoring Type : General Task(s)
Task Name Condition : -- None --
Task Type To Monitor : Workflow, Timer, Windows, Linux/Unix, z/OS, File Monitor, Manual, Email, File Transfer, SQL, FTP File Monitor, Task Monitor, Stored Procedure, ...
Workflow Name Condition : -- None --
Time Scope : -- None --

Statistics

User Estimated End Time :
Average Estimated End Time : 2017-09-20 12:01:34 -0400
Lowest Estimated End Time :
Highest Estimated End Time :

Update
Cancel
Force Finish
View Potential Matches
Refresh
Close

Task Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Task Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Invoked by	System-supplied; how the task instance was launched. Options: - Trigger: (Trigger Name) Instance was launched by the named trigger. - Workflow: (Workflow Name) Instance was launched by the named workflow. - Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Launch Source	System-supplied; Source from which this Recurring task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: - – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. - Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. - Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.

Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Trigger	Trigger, if any, on whose behalf the Task Monitor task is monitoring other tasks.
Task Instance Matched	Last task that matched the specifications of the task(s) being monitored.
Task Monitor Details	This section contains assorted detailed information about the task instance.
Status To Monitor	Status being monitored for. When the task being monitored goes to a status specified in this field, the associated trigger is satisfied and the tasks specified in the trigger launch. You can specify as many statuses as needed (see Task Statuses).
Monitoring Type	Specifies which task or tasks are being monitored. Options: • Specific Task - One task is being monitored. Use the Task to Monitor field to specify the task name. • General Tasks - Allows you to specify selection parameters that determine which task or tasks to be monitored. Use the Task Name Condition and Task Type to Monitor fields to create your selection parameters.
Task to Monitor	If Monitoring Type = Specific Task; specifies the task to monitor. Enter a task name or select a task from the drop-down list. To display details about a task on the list, select it and then click the Task To Monitor icon.

Task Name Condition	If Monitoring Type = General Task(s); specifies a type of condition for the name of tasks being monitored for. If you select a condition type, a corresponding field displays that allows you to enter a value for that condition. Only tasks meeting the specified condition value will be monitored for. Options: - - None - - Equals Starts With Contains Ends With
Task Type to Monitor	If Monitoring Type = General Tasks; allows you to define specific task types to monitor for. For example, to monitor all SQL tasks, you would select Monitoring Type = General Tasks, then select Task Type to Monitor = SQL Tasks.
Task Name Starts With	Required if Task Name Condition = Starts With; Character string at the start of the name of a task or tasks being monitored for.
Task Name Contains	Required if Task Name Condition = Contains; Character string in the name of a task or tasks being monitored for.
Task Name Ends With	Required if Task Name Condition = Ends With; Character string at the end of the name of a task or tasks being monitored for.
Task Name Equals	Required if Task Name Condition = Equals; Character string equaling the name of a task or tasks being monitored for.
Resolve Task Name Condition	If Monitoring Type = Generals Task(s) and Task Name Condition = Starts With, Contains, Ends With, or Equals; Specification (true or false) for whether or not to resolve at run time any variables in the task name of the task(s) being monitored. Default is false.
Workflow Name Condition	Type of condition for the name of a workflow or workflows containing the task being monitored for. If you select a condition type, a corresponding field displays that allows you to enter a value for that condition. Only tasks in workflows meeting the specified condition value will be monitored for. Options: - - None - - Equals Starts With Contains Ends With
Workflow Name Equals	Optional if Workflow Name Condition = Equals; Exact name of a workflow or workflows containing the task being monitored for. If the field is blank, the Task Monitor will consider a Task Instance for a match only if the Task Instance is not contained within a workflow.
Workflow Name Starts With	Required if Workflow Name Condition = Starts With; Character string at the start of the name of a workflow or workflows containing the task being monitored for.

Workflow Name Contains	Required if Workflow Name Condition = Contains; Character string in the name of a workflow or workflows containing the task being monitored for.
Workflow Name Ends With	Required if Workflow Name Condition = Ends With; Character string at the end of the name of a workflow or workflows containing the task being monitored for.
Time Scope	Used for Task Monitor tasks not associated with a trigger. The Time Scope fields are used to create a window during which the Task Monitor conditions must be met in order for the Task Monitor to be satisfied. The Time Scope window is always relative to the time that the Task Monitor launched. For example, if you put -01:00 in the From time field and 02:00 in the To time field, the window's begin time is one hour before the Task Monitor is launched and its end time is two hours after it is launched. Note For additional details, see Understanding Relative Time Scope, below.
From [+/-]hh:mm:	If Time Scope = Relative; used for Task Monitor tasks not associated with a trigger. Together with the Time Scope To field, it allows you to specify a window of time, relative to the time the Task Monitor task launched, during which the conditions of the Task Monitor must be met. If the conditions are not met within the specified window, the Task Monitor task goes to a FAILED status. If you specify a past time in the this field, as soon as the Task Monitor task launches, the Controller searches the Activity table for past events that match the specified conditions. If the conditions are satisfied already, the Task Monitor task goes immediately to SUCCESS status. Otherwise, the Controller continues monitoring until the conditions are met or until the To time has passed.
To [+/-]hh:mm:	If Time Scope = Relative; used for Task Monitor tasks not associated with a trigger. Together with the Time Scope From field, it allows you to specify a window of time, relative to the time the Task Monitor task launched, during which the conditions of the Task Monitor must be met. If the conditions are not met within the specified window, the Task Monitor task goes to a FAILED status. If the conditions in the Task Monitor task are met before the Time Scope To time arrives, the Task Monitor task goes to SUCCESS. If the conditions are not met by the Time Scope To time, the Task Monitor task goes to FAILED status.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	    • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	    • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.

CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.

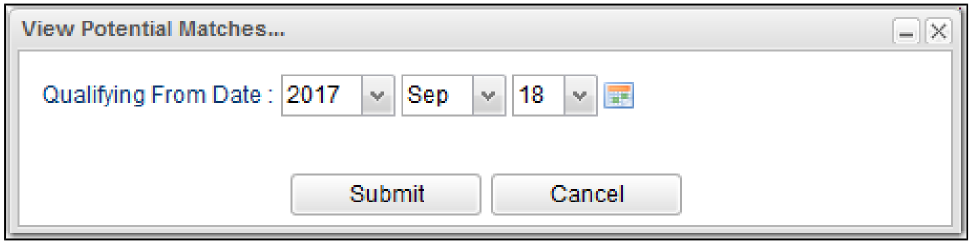
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: - – None – No period of restriction for this task. - Before Restriction is valid if the date is before the Before Date value. - After Restriction is valid if the date is after the After Date value. - Span Restriction is valid if the date is before the Before Date value and after After Date value. - On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.

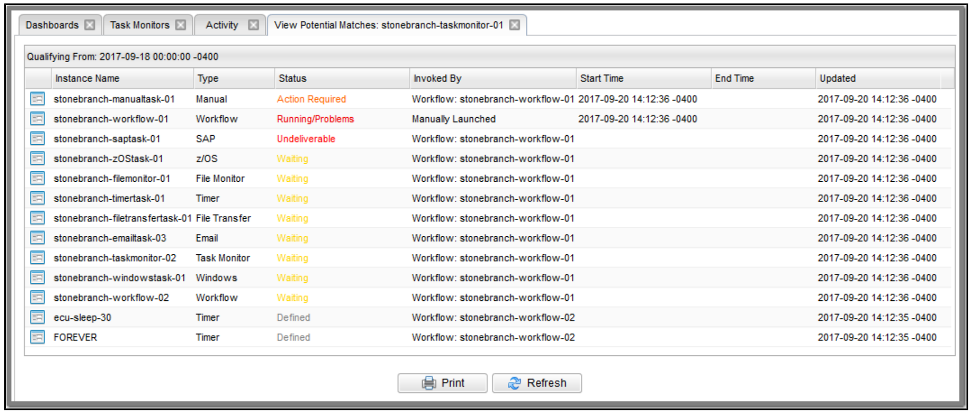
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note ⚠ If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.

View Potential Matches	For Task Monitor task instances in Running status; Allows you to view a list of running task instances that have the potential to match the specifications for tasks being monitored by the running Task Monitor instance (see Viewing Potential Matches for a Running Task Monitor Task Instance, below).
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Delete	Deletes the current record.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.
Notes	Lists all notes associated with this record.

Viewing Potential Matches for a Running Task Monitor Task Instance

To view a list of running task instances that have the potential to match the specifications for tasks being monitored by the running Task Monitor task instance:

Step 1	Either: • From the Activity Monitor or Task Instances list, right-click the the running Task Monitor task instance and select View Potential Matches from the Action Menu. • Open the running Task Monitor task instance and click the View Potential Matches button or right-click in the task instance Details and select View Potential Matches from the Action Menu. • If the running Task Monitor task instance is part of a Workflow, right-click the task instance in the Workflow Monitor and select View Potential Matches from the menu.
Step 2	On the View Potential Matches pop-up dialog, select a date and click Submit.  View Potential Matches... Qualifying From Date : 2017 Sep 18

Step 3	A list of all potential matches displays in a new tab. 
Step 4	Click **Print** to print a hard copy of the list or **Refresh** to refresh the task instances on the list.

Qualifying From: 2017-09-18 00:00:00 -0400

Instance Name	Type	Status	Invoked By	Start Time	End Time	Updated
stonebranch-manualtask-01	Manual	Action Required	Workflow: stonebranch-workflow-01	2017-09-20 14:12:36 -0400		2017-09-20 14:12:36 -0400
stonebranch-workflow-01	Workflow	Running/Problems	Manually Launched	2017-09-20 14:12:36 -0400		2017-09-20 14:12:36 -0400
stonebranch-saptask-01	SAP	Undeliverable	Workflow: stonebranch-workflow-01			2017-09-20 14:12:36 -0400
stonebranch-zOStask-01	z/OS	Waiting	Workflow: stonebranch-workflow-01			2017-09-20 14:12:36 -0400
stonebranch-filemonitor-01	File Monitor	Waiting	Workflow: stonebranch-workflow-01			2017-09-20 14:12:36 -0400
stonebranch-timertask-01	Timer	Waiting	Workflow: stonebranch-workflow-01			2017-09-20 14:12:36 -0400
stonebranch-filetransfertask-01	File Transfer	Waiting	Workflow: stonebranch-workflow-01			2017-09-20 14:12:36 -0400
stonebranch-emailtask-03	Email	Waiting	Workflow: stonebranch-workflow-01			2017-09-20 14:12:36 -0400
stonebranch-taskmonitor-02	Task Monitor	Waiting	Workflow: stonebranch-workflow-01			2017-09-20 14:12:36 -0400
stonebranch-windowstask-01	Windows	Waiting	Workflow: stonebranch-workflow-01			2017-09-20 14:12:36 -0400
stonebranch-workflow-02	Workflow	Waiting	Workflow: stonebranch-workflow-01			2017-09-20 14:12:36 -0400
ecu-sleep-30	Timer	Defined	Workflow: stonebranch-workflow-02			2017-09-20 14:12:35 -0400
FOREVER	Timer	Defined	Workflow: stonebranch-workflow-02			2017-09-20 14:12:35 -0400

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Understanding Relative Time Scope

For any *relative* Time Scope conditions *within the past*, a Task Monitor will analyze only the current content of the database; specifically, by using the Status (ops_exec."status_code") and the State Changed Time (ops_exec."state_changed_time") to determine potential matches from the time window in the past.

Consider a Task Monitor instance monitoring for a Failed status within a time window in the past. If a potential task instance has a current status of Failed, the current State Changed Time will indicate when that task instance transitioned to the Failed status. When the Task Monitor instance runs, any task instance with a matching Status, and a State Changed Time within the time window in the past, can be considered for a match.

Note

The Task Monitor instance will consider only the *current* content (that is, *current* Status and *current* State Changed Time) of the All Task Instances (ops_exec) table when searching for qualifying task instances that *match within a time window in the past*.

Revisiting the example above, if you had a task instance with a status of Failed within the time window in the past, but prior to the Task Monitor instance running, the task instance was Finished, it would no longer be considered for a match.

Be aware that when specified, the Time Scope is *relative* to the time that the Task Monitor instance runs.

For example, consider the following Task Monitor instance:

Field	Value

Start Time	2017-11-02 15:05:00 -0400
From [+/-]hh:mm	-6:00
To [+/-]hh:mm	-2:00
Status To Monitor	Success
Task To Monitor	Sleep 0

For the *relative* Time Scope specified above, with a time window in the past, this would translate into the following query, paying particular attention to how the relative times are computed.

```
SELECT * FROM ops_exec WHERE "state_changed_time">= '2017-11-02 09:05:00 -0400' AND "state_changed_time"<= '2017-11-02 13:05:00 -0400' AND
"status_code" = '200' AND "task_id" = '410d6c0bc0a801c901838d8ac43b3279'
```

Agent File Monitor Task

- Overview
- Processing Flow for Agent File Monitors
  - Launching an Agent File Monitor Task Within a Workflow
  - Launching an Agent File Monitor Task Using an Agent File Monitor Trigger
  - Launching an Agent File Monitor Task Manually or Via Other Trigger
- Built-In Variables
- Creating an Agent File Monitor Task
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  - Agent File Monitor Task Details Field Descriptions
- Viewing an Agent File Monitor Task Instance
  - Agent File Monitor Task Instance Details
  - Agent File Monitor Task Instance Details Field Descriptions
- Monitoring Task Execution

Overview

The Agent File Monitor task allows you to monitor a specific remote machine for the creation, deletion, change, existence, or non-existence of one or more files at a specific location. In order to run an Agent File Monitor task, you need Universal Agent for Windows, Linux/Unix, or z/OS running on the machine where you are monitoring for the file.

Processing Flow for Agent File Monitors

Agent File Monitor tasks are meant to be launched either by using a Agent File Monitor trigger or by being included within a Workflow. However, there are no technical restrictions on how an Agent File Monitor task can be launched. The processing may differ depending on which of the following methods was used to launch it:

- Launched by a Workflow
- Launched by an Agent File Monitor trigger
- Launched manually or by another trigger type

The processing on an Agent File Monitor task for each launching method is described below.

Note

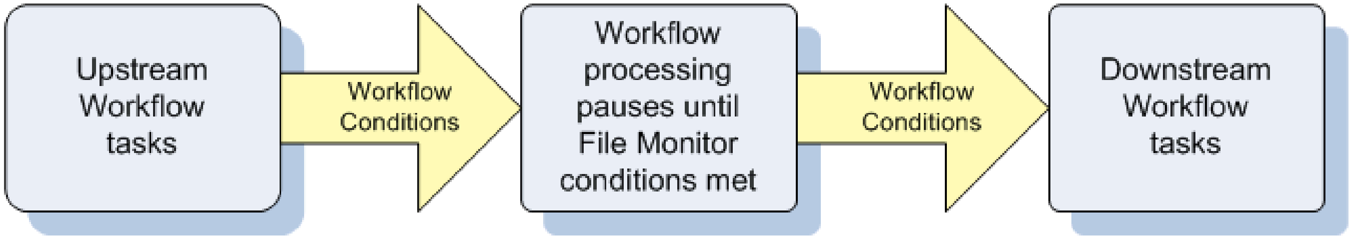
⚠ Any changes made to an Agent File Monitor task are not recognized by its respective Triggers until those Triggers are disabled and re-enabled.

Launching an Agent File Monitor Task Within a Workflow

The Agent File Monitor task can be launched within a Workflow.

In this scenario, the task launches when the upstream workflow conditions are satisfied. Workflow processing then pauses until the conditions in the Agent File Monitor task are satisfied. If the Agent File Monitor is watching for the creation, change, or deletion of a file, the task goes to SUCCESS when the event occurs. If the Agent File Monitor is watching for the existence or non-existence of a file, the task immediately goes to SUCCESS or FAILURE. Subsequent processing depends on the conditions built into the Workflow.

The following diagram illustrates the processing for this scenario.


Upstream Workflow tasks
Workflow Conditions
Workflow processing pauses until File Monitor conditions met
Workflow Conditions
Downstream Workflow tasks

Launching an Agent File Monitor Task Using an Agent File Monitor Trigger

A common use for the Agent File Monitor task is to launch it using an Agent File Monitor trigger, which specifies one or more tasks that are launched when a condition(s) is satisfied.

In this scenario, the Agent File Monitor task launches when its associated Agent File Monitor trigger is enabled.

Note

⚠ You should use an Agent File Monitor trigger to launch only Agent File Monitor tasks that specify a single Agent, not an Agent Cluster. An Agent File Monitor trigger can launch only a single task, not multiple tasks, which would be the case if an Agent Cluster was specified.

This method is best geared toward watching for the creation, deletion, or change in files. When the conditions in the Agent File Monitor task are satisfied, the Agent File Monitor task goes to SUCCESS and the tasks listed in the associated trigger are launched. The Agent File Monitor task continues running until its conditions are satisfied or until the user disables the trigger.

If you use this method to check for the existence or non-existence of a file, as soon as the task is launched it goes to SUCCESS or FINISHED status. If it goes to SUCCESS, the tasks specified in the trigger are launched. A FINISHED status indicates that it found a file that should not be there or did not find a file that should be there. Both of these cases constitute a "failure" of the conditions and therefore the tasks in the trigger are not launched.

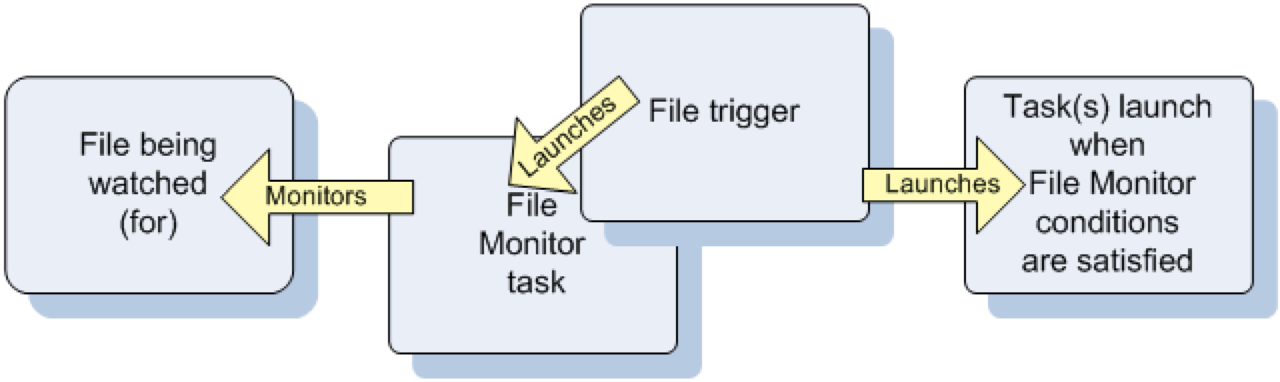
When the Agent File Monitor task goes to FINISHED or SUCCESS, the associated Agent File (Monitor) trigger is automatically disabled.

Note

⚠ Using an Agent File Monitor trigger to trigger an Agent File Monitor task that is monitoring for the creation of one or more files (Monitor Type = Exists) will disable the trigger. You should instead specify (Monitor Type = Create) and check Trigger on Existence.

When you launch an Agent File Monitor task from an Agent File Monitor trigger, you cannot manually cancel or force finish the task. You can only stop the task by disabling the trigger. If you manually disable the trigger while the task is still running, the task goes to FINISHED status.

The diagram below illustrates the processing flow for this scenario.


File being watched (for)
Monitors
File Monitor task
Launches
File trigger
Launches
Task(s) launch when File Monitor conditions are satisfied

Launching an Agent File Monitor Task Manually or Via Other Trigger

If you manually launch an Agent File Monitor task or launch it using a non-Agent File Monitor trigger, such as a Time trigger, the task continues running until its specified conditions are met, at which time the task goes to SUCCESS. No other processing occurs unless you have configured notifications with the task or set up some other task(s) to launch based on the status of this task.

If the conditions are not met, the task runs perpetually or until a user issues a Cancel or Force Finish command against it.

Built-In Variables

The following built-in variables can be used in an Agent File Monitor task to pass data where appropriate:

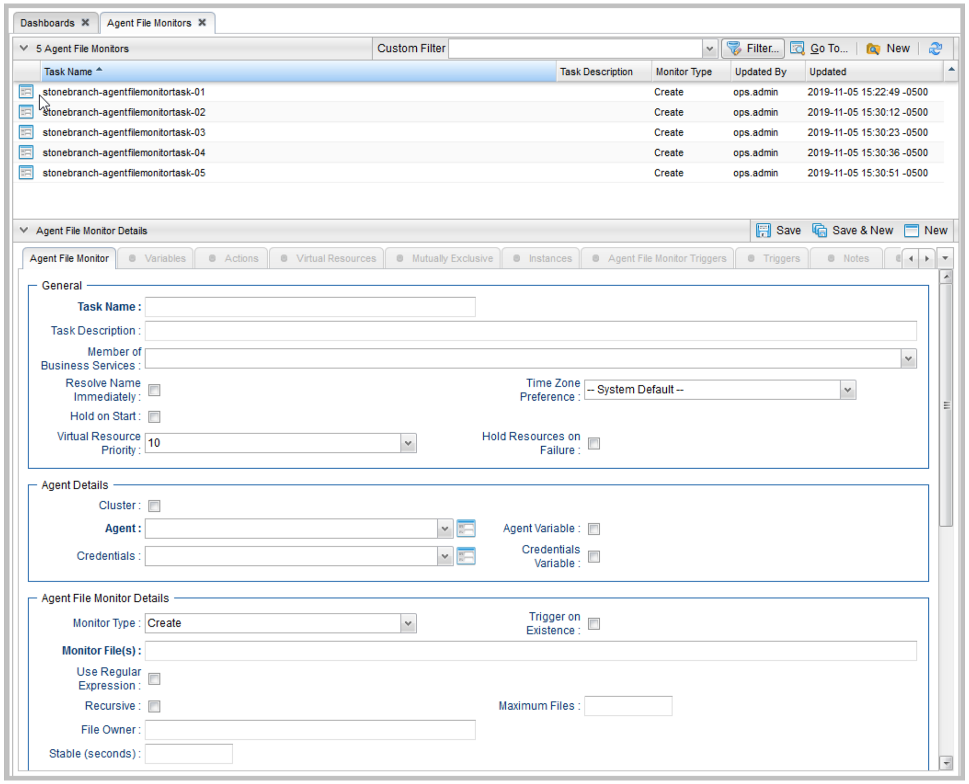
- Task Instance variables
- Agent-Based Task Instance variables
- Agent File Monitor Task variables

Creating an Agent File Monitor Task

Step 1

From the Automation Center navigation pane, select **Tasks > Agent File Monitor Tasks**. The Agent File Monitor Tasks list displays a list of all currently defined Agent File Monitor tasks.

Below the list, Agent File Monitor Task Details for a new Agent File Monitor task displays.


Dashboards
Agent File Monitors
5 Agent File Monitors
Custom Filter
Filter...
Go To...
New
Agent File Monitor Details
Save
Save & New
New
Agent File Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Agent File Monitor Triggers
Triggers
Notes
General
Agent Details
Agent File Monitor Details

Task Name	Task Description	Monitor Type	Updated By	Updated
stonebranch-agentfilemonitortask-01		Create	ops.admin	2019-11-05 15:22:49 -0500
stonebranch-agentfilemonitortask-02		Create	ops.admin	2019-11-05 15:30:12 -0500
stonebranch-agentfilemonitortask-03		Create	ops.admin	2019-11-05 15:30:23 -0500
stonebranch-agentfilemonitortask-04		Create	ops.admin	2019-11-05 15:30:36 -0500
stonebranch-agentfilemonitortask-05		Create	ops.admin	2019-11-05 15:30:51 -0500

General

Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Agent Details

Cluster : ☐
Agent :
Agent Variable : ☐
Credentials :
Credentials Variable : ☐

Agent File Monitor Details

Monitor Type : Create
Trigger on Existence : ☐
Monitor File(s) :
Use Regular Expression : ☐
Recursive : ☐
Maximum Files :
File Owner :
Stable (seconds) :

Step 2

Enter/select Details for a new Agent File Monitor task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

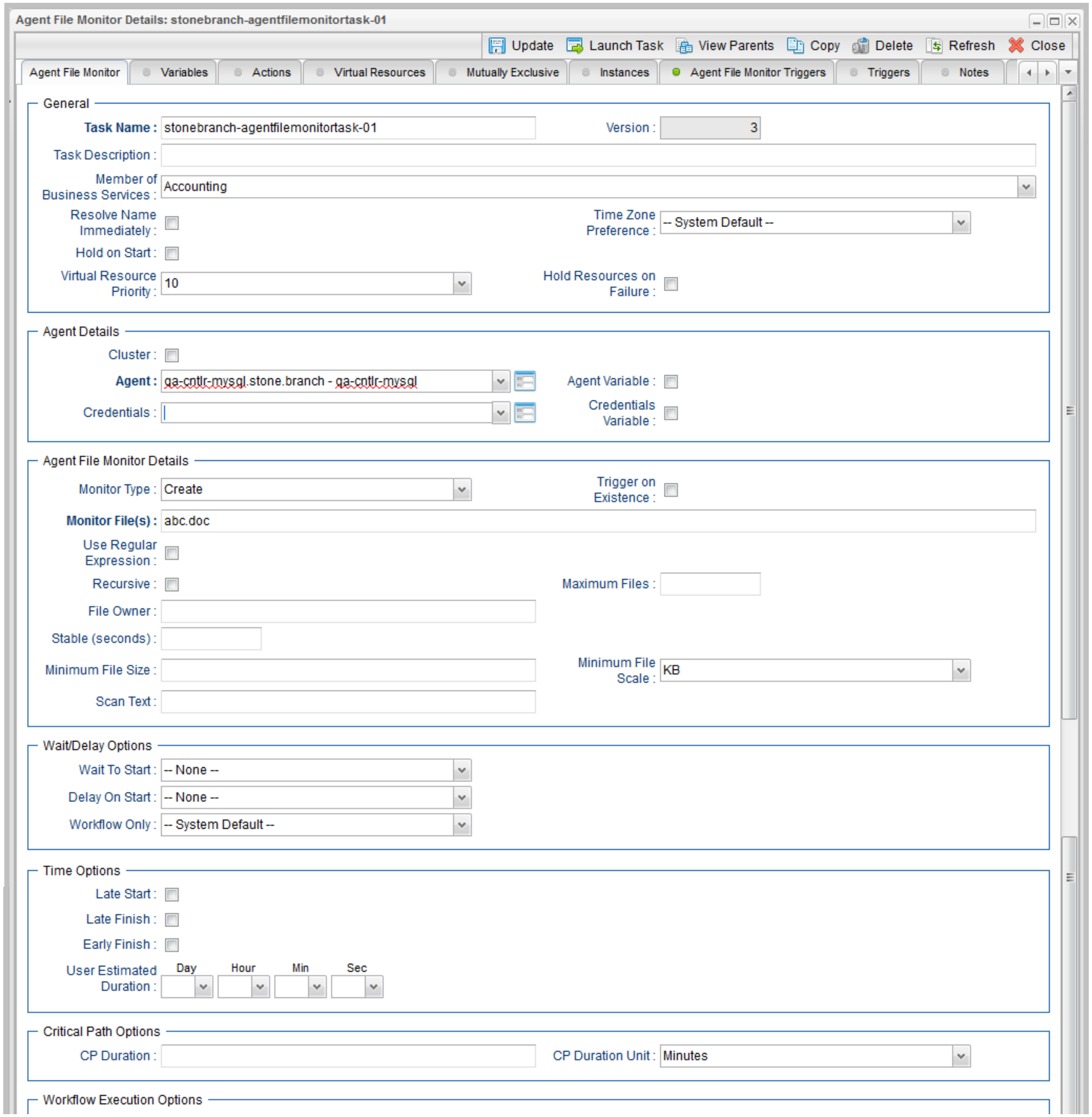
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Agent File Monitor Task Details

The following Agent File Monitor Task Details is for an existing Agent File Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Agent File Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Agent File Monitor Task Details.


Agent File Monitor Details: stonebranch-agentfilemonitortask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Agent File Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Agent File Monitor Triggers
Triggers
Notes

General

Task Name : stonebranch-agentfilemonitortask-01
Version : 3
Task Description :
Member of Business Services : Accounting
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Agent Details

Cluster : ☐
Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Agent Variable : ☐
Credentials :
Credentials Variable : ☐

Agent File Monitor Details

Monitor Type : Create
Trigger on Existence : ☐
Monitor File(s) : abc.doc
Use Regular Expression : ☐
Recursive : ☐
Maximum Files :
File Owner :
Stable (seconds) :
Minimum File Size :
Minimum File Scale : KB
Scan Text :

Wait/Delay Options

Wait To Start : -- None --
Delay On Start : -- None --
Workflow Only : -- System Default --

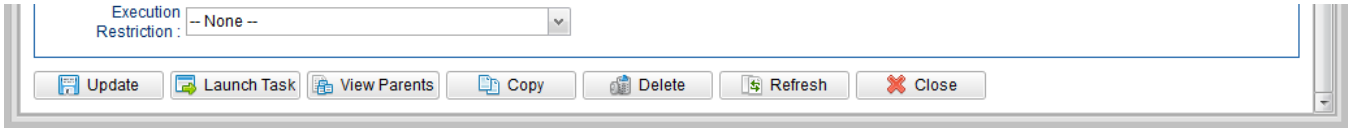
Time Options

Late Start : ☐
Late Finish : ☐
Early Finish : ☐
User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :
CP Duration Unit : Minutes

Workflow Execution Options



Execution Restriction : -- None --

Agent File Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Agent File Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.

Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.

Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Broadcast	Displays only if Cluster is selected; Indication that selecting a Cluster Broadcast is required. Selecting Broadcast hides the Agent and Agent Cluster fields; you cannot select values for them.
Cluster Broadcast	Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.
Cluster Broadcast Variable	Indication of whether the Cluster Broadcast field is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the Cluster Broadcast as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Cluster Broadcast reference to using a Cluster Broadcast variable, you must change the **Cluster Broadcast Variable** field to **Yes** and specify the Cluster Broadcast variable in the **Cluster Broadcast Unresolved** field. Conversely, to change from using a Cluster Broadcast variable to using a Cluster Broadcast reference, you must change the **Cluster Broadcast Variable** field to **No** and specify the Cluster Broadcast reference in the **Cluster Broadcast** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.

Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Agent File Monitor Details	This section contains assorted detailed information about the task.
Monitor Type	Type of file event being monitored for. Options: - Create - Wait for the creation of one or more files. - Delete - Wait for the deletion of one or more files. - Change - Monitor for a change in one or more files. - Exists - Check to see if one or more files already exist. - Missing - Check to see if one or more files do not exist.
Trigger on Existence	If Monitor Type = Create; Task is triggered if the file being monitored for creation already exists. Note This field is valid only for Linux/Unix and Windows Agents.
Monitor File (s)	Location and name of a specific file or file pattern (for example, ACT001*) being monitored. Variables supported. Wildcards supported. Note z/OS files must be valid names based on the Data Set Naming Rules. No extra quoting is necessary. Note Agent File Monitors with Monitor Type = Exists or Missing do not work with GDG datasets. Whether the generation is coded explicitly (for example: DATA.SET.NAME.G0001V00) or relatively (for example: DATA.SET.NAME(0)), the Agent File Monitor will always end with 'Dataset Not Found'.
Use Regular Expression	Enables the use of a regular expression in the Monitor File(s) field.
Recursive	If enabled, the monitor searches the specified directory and all subdirectories.

Maximum Files	If Monitor Type = Create, Delete, or Change; For searches that use wildcards, limits the number of files to be searched.
File Owner	If Monitor Type = Create, Delete, Change, or Exists; User name / group name of the owner of the file on the operating system; that is, the user name / group name returned by the operating system in the file ownership information. LDAP groups are supported. Specifying a file owner limits the search to files with that owner.
Stable (seconds)	If Monitor Type = Change or Create; Period of time, in seconds, that a file's timestamp and size may not change to be considered as stable. Not applicable for z/OS.
By Percentage (+/-)	If Monitor Type = Change; Number that specifies the growth of a file as a percentage. A negative number specifies a reduction in size as a percentage. Not applicable for z/OS.
By Size (+/-)	If Monitor Type = Change; Used in conjunction with the By Scale field, specifies an actual change in file size. For example, to monitor for a change in file size of 10 MB, enter 10 in this field and select MB in the By Scale field. Enter a negative number to specify a reduction in size. Not applicable for z/OS.
By Scale	If Monitor Type = Change; Used in conjunction with the By Size field, specifies Bytes, KB (kilobytes), or MB (megabytes). Not applicable for z/OS.
To Size	If Monitor Type = Change; Used in conjunction with the To Scale field, specifies an actual file size that you want to monitor for. For example, to monitor for a file size of 5KB, enter 5 in this field and select KB in the To scale field. Not applicable for z/OS.
To Scale	If Monitor Type = Change; Used in conjunction with the To Size field, specifies an actual file size that you want to monitor for. Not applicable for z/OS.
Minimum File Size	If Monitor Type = Create; Minimum file size required for the file being created. Not applicable for z/OS.
Minimum File Scale	If Monitor Type = Create; Scale for the Minimum File Size. Not applicable for z/OS. Options: • Bytes • KB • MB
Scan Text	If Monitor Type = Change or Exists, or if Monitor Type = Create and a value for Stable (seconds) is specified; Specifying a string means that only files containing the string constitute a match. The string will be processed as a regular expression. Not applicable for z/OS.

Scan Forward	If Monitor Type = Change; Specifies that once the File Monitor has been satisfied, it should continue from where it left off. - If it is scanning within a file, it should resume from the point in the file that it last scanned. - If it is monitoring for files, it should resume monitoring for the next file. - If you are scanning a file that is being overwritten each time and you want to start from the beginning each time, you should disable Scan Forward. Not applicable for z/OS.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related statistics for task instances of the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note ⚠ You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

Actions	Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task. Events are: • Task instance status • Exit codes • Late start • Late finish • Early finish Actions are: **Abort Action**: Abort the task if certain events occur. For details, see Abort Actions. **Email Notification**: Send an email if certain events occur. For details, see Email Notification Actions. **Set Variable**: Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow. **SNMP Notification**: Send an email if certain events occur. For details, see SNMP Notification Actions. **System Operation**: Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.
Instances	Lists all instances of the task.
Agent File Monitor Triggers	Lists all Agent File Monitor triggers that reference this task in the Agent File Monitor field of the trigger Details; that is, a list of all Agent File Monitor triggers that execute this task. For instructions on creating triggers, see Triggers.
Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.
Notes	Lists all notes associated with this record.

Versions	Stores copies of all previous versions of the current record. See Record Versioning.

Viewing an Agent File Monitor Task Instance

When an Agent File Monitor task is launched, the Controller creates a task instance record of that task.

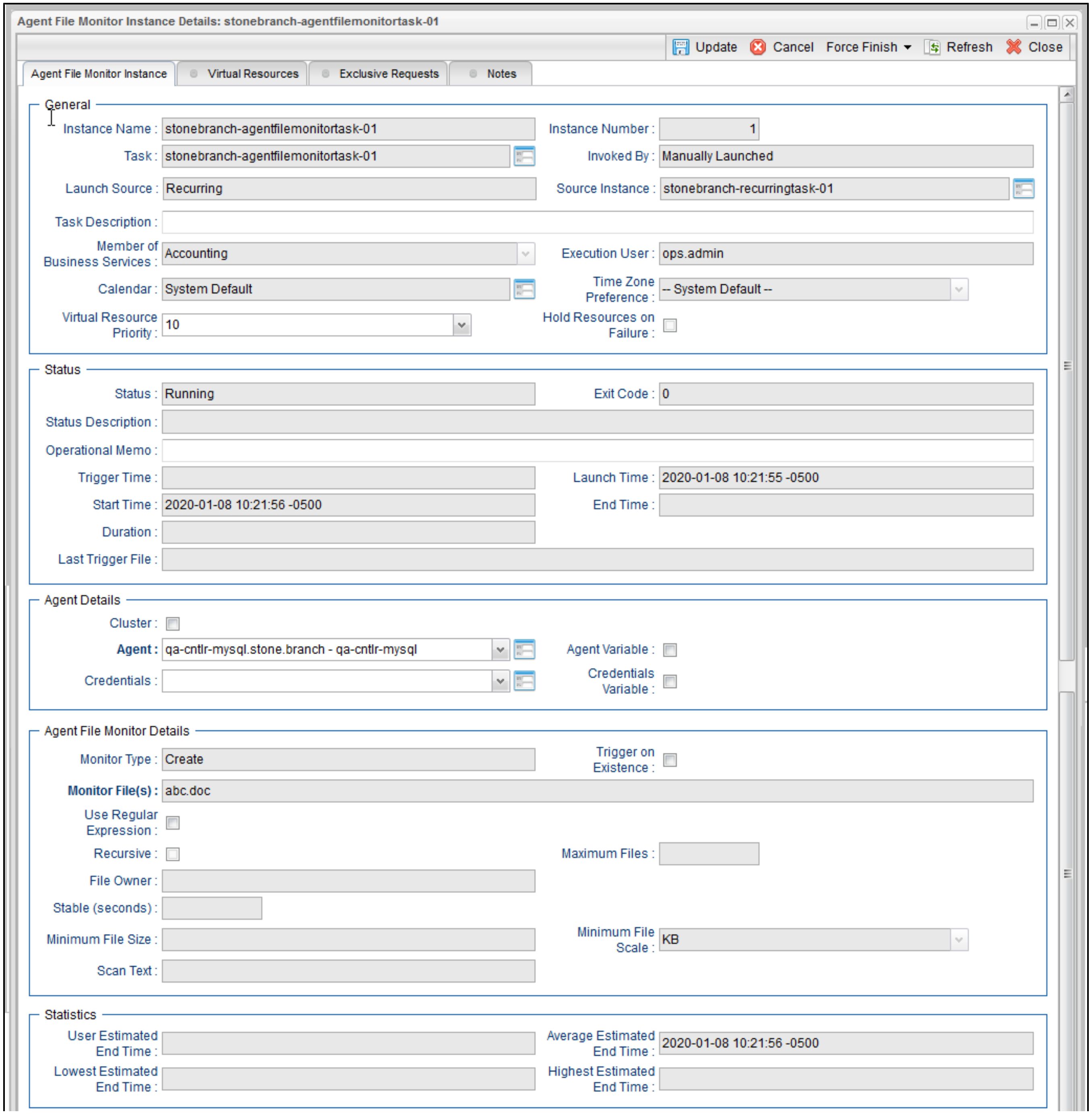
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Agent File Monitor Task Details for that task
- Activity Monitor
- Task Instances list

Agent File Monitor Task Instance Details

The following Agent File Monitor Task Instance Details contains information on the execution of the task shown in the Agent File Monitor Task Details.


Agent File Monitor Instance Details: stonebranch-agentfilemonitortask-01
Update
Cancel
Force Finish
Refresh
Close
Agent File Monitor Instance
Virtual Resources
Exclusive Requests
Notes

General

Instance Name : stonebranch-agentfilemonitortask-01
Instance Number : 1
Task : stonebranch-agentfilemonitortask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services : Accounting
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Running
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-08 10:21:55 -0500
Start Time : 2020-01-08 10:21:56 -0500
End Time :
Duration :
Last Trigger File :

Agent Details

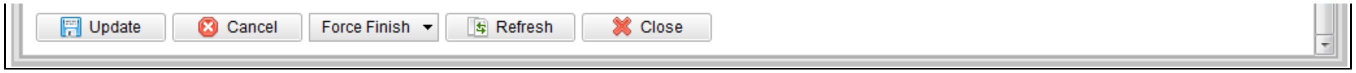
Cluster : ☐
Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Agent Variable : ☐
Credentials :
Credentials Variable : ☐

Agent File Monitor Details

Monitor Type : Create
Trigger on Existence : ☐
Monitor File(s) : abc.doc
Use Regular Expression : ☐
Recursive : ☐
Maximum Files :
File Owner :
Stable (seconds) :
Minimum File Size :
Minimum File Scale : KB
Scan Text :

Statistics

User Estimated End Time :
Average Estimated End Time : 2020-01-08 10:21:56 -0500
Lowest Estimated End Time :
Highest Estimated End Time :



Agent File Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Agent File Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Launch Source	System-supplied; Source from which this Recurring task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.

Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.

Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No**and specify the Credentials reference in the **Credentials** field.
Agent File Monitor Details	This section contains assorted detailed information about the task instance.
Monitor Type	Type of file event being monitored for. Options: • Create - Wait for the creation of one or more files. • Delete - Wait for the deletion of one or more files. • Change - Monitor for a change in one or more files. • Exists - Check to see if one or more files already exist. • Missing - Check to see if one or more files do not exist.

Trigger on Existence	If Monitor Type = Create; Task is triggered if the file being monitored for creation already exists. Note This field is valid only for Linux/Unix and Windows Agents.
Monitor File (s)	Location and name of a specific file or file pattern (for example, ACT001*) being monitored. Variables supported. Wildcards supported. Note z/OS files must be valid names based on the Data Set Naming Rules. No extra quoting is necessary. Note Agent File Monitors with Monitor Type = Exists or Missing do not work with GDG datasets. Whether the generation is coded explicitly (for example: DATA.SET.NAME.G0001V00) or relatively (for example: DATA.SET.NAME(0)), the Agent File Monitor will always end with 'Dataset Not Found'.
Use Regular Expression	Enables the use of a regular expression in the Monitor File(s) field.
Recursive	If enabled, the monitor searches the specified directory and all subdirectories.
Maximum Files	If Monitor Type = Create, Delete, or Change; For searches that use wildcards, limits the number of files to be searched.
File Owner	If Monitor Type = Create, Delete, Change, or Exists; User name / group name of the owner of the file on the operating system; that is, the user name / group name returned by the operating system in the file ownership information. LDAP groups are supported. Specifying a file owner limits the search to files with that owner.
Stable (seconds)	If Monitor Type = Change or Create; Period of time, in seconds, that a file's timestamp and size may not change to be considered as stable. Not applicable for z/OS.
By Percentage (+/-)	If Monitor Type = Change; Number that specifies the growth of a file as a percentage. A negative number specifies a reduction in size as a percentage. Not applicable for z/OS.
By Size (+/-)	If Monitor Type = Change; Used in conjunction with the By Scale field, specifies an actual change in file size. For example, to monitor for a change in file size of 10 MB, enter 10 in this field and select MB in the By Scale field. Enter a negative number to specify a reduction in size. Not applicable for z/OS.
By Scale	If Monitor Type = Change; Used in conjunction with the By Size field, specifies Bytes, KB (kilobytes), or MB (megabytes). Not applicable for z/OS.
To Size	If Monitor Type = Change; Used in conjunction with the To Scale field, specifies an actual file size that you want to monitor for. For example, to monitor for a file size of 5KB, enter 5 in this field and select KB in the To scale field. Not applicable for z/OS.

To Scale	If Monitor Type = Change; Used in conjunction with the To Size field, specifies an actual file size that you want to monitor for. Not applicable for z/OS.
Minimum File Size	If Monitor Type = Create; Minimum file size required for the file being created. Not applicable for z/OS.
Minimum File Scale	If Monitor Type = Create; Scale for the Minimum File Size. Not applicable for z/OS. Options: • Bytes • KB • MB
Scan Text	If Monitor Type = Change or Exists, or if Monitor Type = Create and a value for Stable (seconds) is specified; Specifying a string means that only files containing the string constitute a match. The string will be processed as a regular expression. Not applicable for z/OS.
Scan Forward	If Monitor Type = Change; Specifies that once the File Monitor has been satisfied, it should continue from where it left off. • If it is scanning within a file, it should resume from the point in the file that it last scanned. • If it is monitoring for files, it should resume monitoring for the next file. • If you are scanning a file that is being overwritten each time and you want to start from the beginning each time, you should disable Scan Forward. Not applicable for z/OS.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note ⚠ If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (`ops_exclusive_order`) for this task instance.
Notes	Lists all notes associated with this record.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

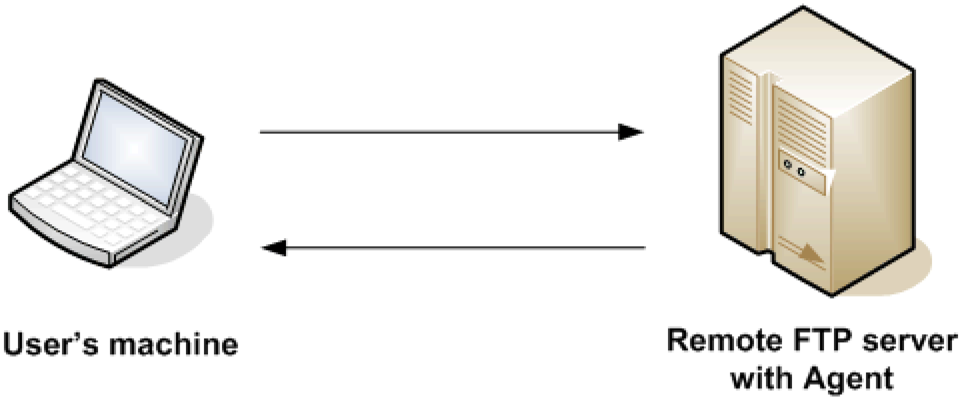
Remote File Monitor Task

- Overview
- Built-In Variables
- Creating a Remote File Monitor Task
    - Remote File Monitor Task Details
    - Remote File Monitor Task Details Field Descriptions
- Viewing a Remote File Monitor Task Instance
    - Remote File Monitor Task Instance Details
    - Remote File Monitor Task Instance Details Field Descriptions
- Running a Remote File Monitor Task
- Monitoring Task Execution
- Built-In Variables

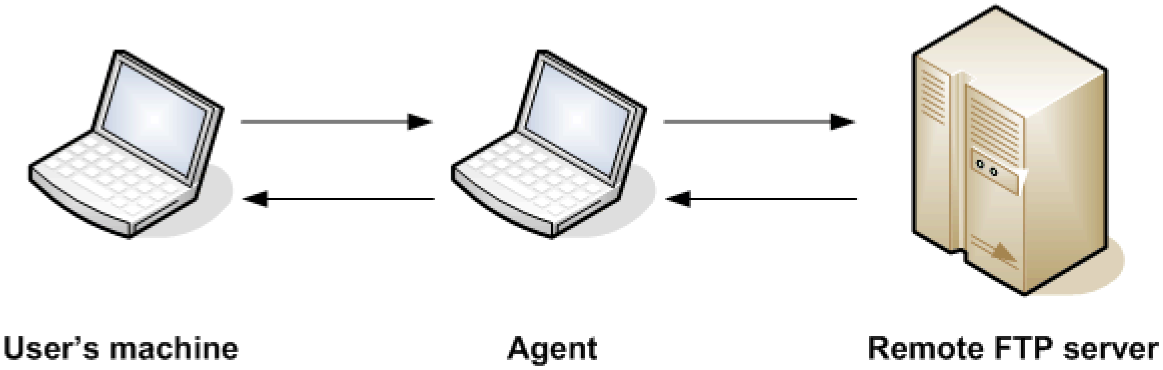
Overview

The Remote File Monitor task allows you to monitor for a file on a remote machine where an FTP server is running. The Remote File Monitor connects to the FTP server rather than the machine's file system to monitor for files. The Remote File Monitor can be used only within a workflow; you cannot run a Remote File Monitor task based on a trigger. To run a Remote File Monitor task, you need Universal Agent to communicate with the FTP server. The Agent can, but does not have to be, running on the same machine as the FTP server.

In the following example, the user wants to monitor for a file on a remote FTP Server that has an Agent running on it. In this case, the login credentials for the Agent machine and the FTP server machine are the same.



In the following example, the user wants to monitor for a file on a remote FTP Server that does not have an Agent running on it. In this case, the Remote File Monitor task definition provides an address and login credentials for the machine where the Agent is running as well as address and login credentials for the FTP server.



Built-In Variables

The following built-in variables can be used in a Remote File Monitor task to pass data where appropriate:

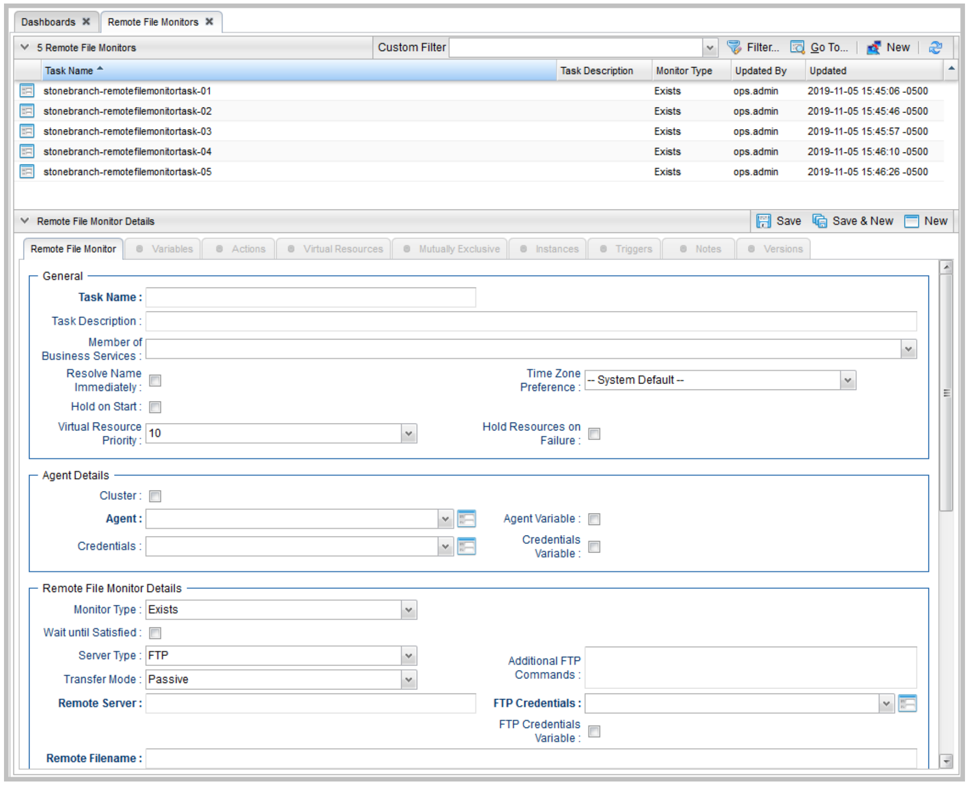
- Task Instance variables
- Agent-Based Task Instance variables
- Remote File Monitor Task variables

Creating a Remote File Monitor Task

Step 1

From the Automation Center navigation pane, select **Tasks > Remote File Monitor Tasks**. The Remote File Monitor Tasks list displays a list of all currently defined Remote File Monitor tasks.

Below the list, Remote File Monitor Task Details for a new Remote File Monitor task displays.


Dashboards
Remote File Monitors
5 Remote File Monitors
Custom Filter
Filter...
Go To...
New
Remote File Monitor Details
Save
Save & New
New
Remote File Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Agent Details
Remote File Monitor Details

Task Name	Task Description	Monitor Type	Updated By	Updated
stonebranch-remotefilemonitortask-01		Exists	ops.admin	2019-11-05 15:45:06 -0500
stonebranch-remotefilemonitortask-02		Exists	ops.admin	2019-11-05 15:45:46 -0500
stonebranch-remotefilemonitortask-03		Exists	ops.admin	2019-11-05 15:45:57 -0500
stonebranch-remotefilemonitortask-04		Exists	ops.admin	2019-11-05 15:46:10 -0500
stonebranch-remotefilemonitortask-05		Exists	ops.admin	2019-11-05 15:46:26 -0500

Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐
Cluster : ☐
Agent :
Agent Variable : ☐
Credentials :
Credentials Variable : ☐
Monitor Type : Exists
Wait until Satisfied : ☐
Server Type : FTP
Additional FTP Commands :
Transfer Mode : Passive
Remote Server :
FTP Credentials :
FTP Credentials Variable : ☐
Remote Filename :

Step 2

Enter/select Details for a new Remote File Monitor task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

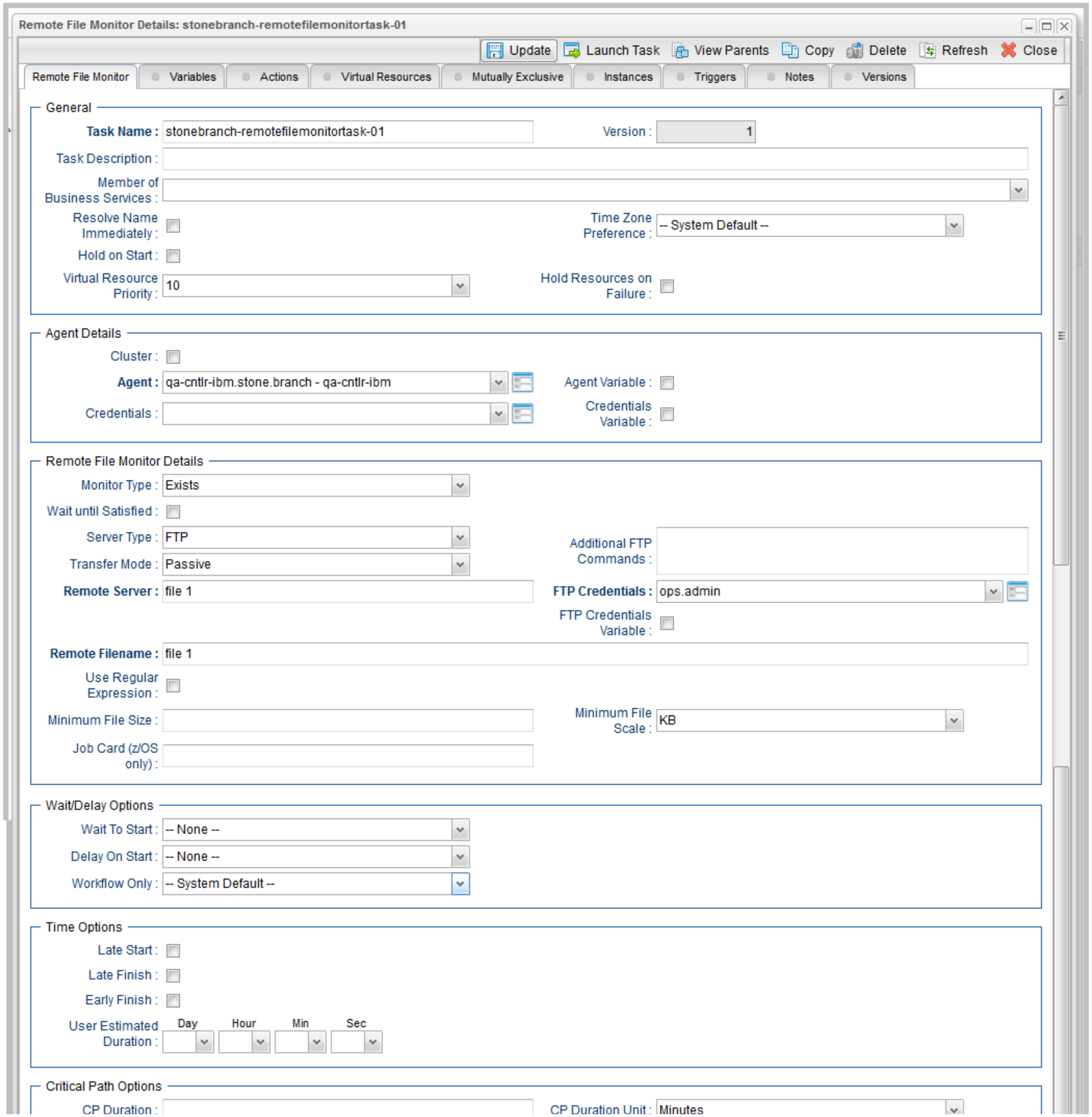
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Remote File Monitor Task Details

The following Remote File Monitor Task Details is for an existing Remote File Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Remote File Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Remote File Monitor Task Details.



Remote File Monitor Details: stonebranch-remotefilemonitortask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Remote File Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

General

Task Name : stonebranch-remotefilemonitortask-01
Version : 1
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Agent Details

Cluster : ☐
Agent : qa-cntlr-ibm.stone.branch - qa-cntlr-ibm
Agent Variable : ☐
Credentials :
Credentials Variable : ☐

Remote File Monitor Details

Monitor Type : Exists
Wait until Satisfied : ☐
Server Type : FTP
Additional FTP Commands :
Transfer Mode : Passive
Remote Server : file 1
FTP Credentials : ops.admin
FTP Credentials Variable : ☐
Remote Filename : file 1
Use Regular Expression : ☐
Minimum File Size :
Minimum File Scale : KB
Job Card (z/OS only) :

Wait/Delay Options

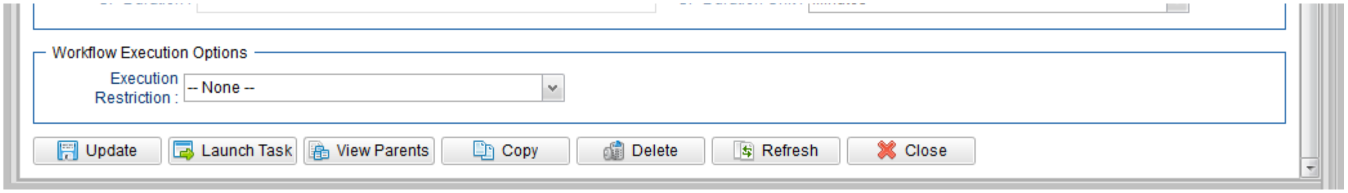
Wait To Start : -- None --
Delay On Start : -- None --
Workflow Only : -- System Default --

Time Options

Late Start : ☐
Late Finish : ☐
Early Finish : ☐
User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :
CP Duration Unit : Minutes



Workflow Execution Options

Execution Restriction : -- None --

Remote File Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Remote File Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.

Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.

Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Broadcast	Displays only if Cluster is selected; Indication that selecting a Cluster Broadcast is required. Selecting Broadcast hides the Agent and Agent Cluster fields; you cannot select values for them.
Cluster Broadcast	Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.
Cluster Broadcast Variable	Indication of whether the Cluster Broadcastfield is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the Cluster Broadcast as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Cluster Broadcast reference to using a Cluster Broadcast variable, you must change the **Cluster Broadcast Variable** field to **Yes** and specify the Cluster Broadcast variable in the **Cluster Broadcast Unresolved** field. Conversely, to change from using a Cluster Broadcast variable to using a Cluster Broadcast reference, you must change the **Cluster Broadcast Variable** field to **No** and specify the Cluster Broadcast reference in the **Cluster Broadcast** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.

Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Remote File Monitor Details	This section contains assorted detailed information about the task.
Monitor Type	Unable to render {include} The included page could not be found.
Wait until Satisfied	If enabled, the task instance starts and continues to run until one of the following events occurs: • If Monitor Type = Exists and the specified file exists or appears, the task instance completes with a status of SUCCESS. • If Monitor Type = Missing and the specified file does not exist (or any part of the path is missing), or exists then disappears, the task instance completes with a status of SUCCESS. If not enabled, the task instance: 1. Starts. 2. Checks for the existence of the file. 3. Takes one of the following actions: • If Monitor Type = Exists and the file exists, the task instance completes with a status of SUCCESS. • If Monitor Type = Exists and the file does not exist (or any part of the path is missing), the task instance completes with a status of FAILURE. • If Monitor Type = Missing and the file exists, the task instance completes with a status of FAILURE. • If Monitor Type = Missing and the file does not exist (or any part of the path is missing), the task instance completes with a status of SUCCESS.
Poll Interval (Seconds)	If Wait until Satisfied is enabled: Frequency, in seconds, in which the Remote File Monitor will check to see if the file exists or is missing.
Maximum Polls	If Wait until Satisfied is enabled: Maximum number of times that the Remote File Monitor will check to see if the file exists or is missing.

Stable (Seconds)	If Wait until Satisfied is enabled: Period of time, in seconds, during which the file has not changed. For a Remote File Monitor task, a file's stability depends on its size. If the file size displayed in the FTP/SFTP output does not change during the specified number of seconds, the file is considered stable. In order for the task to reliably monitor the file's stability, the task must display a file's size in a well-known location. This means that the file list returned in the output must be in Unix long-listing format, as follows: `-rwxr-xr-x 1  owner group 12345 Jan 1 2016  somefile.txt` The task will only find the size if it is in the 5th column (for example, `12345` in the example above). The default file list format varies across different FTP client/server implementations, but most support additional commands that can force the output to the required format. The Additional FTP Commands field is provided to insert those statements into the FTP script that the file monitor task executes.
Server Type	Type of FTP server. Options: • FTP • SFTP • FTPS Note ⚠ The Remote File Monitor Task Exclude Protocols Universal Controller system property permits the exclusion of one or more, but not all, protocols (server types) from being selected.)

Additional FTP Commands

If Server Type is FTP or FTPS: Set of extra commands to be sent to the FTP server, such as optional statements that control the FTP output format.

The Agent depends on the file list being in Unix "long" format (that is, what you would see if you entered "ls -l" from the command shell) in order to correctly and reliably parse out file name and size (when a Stable period is specified). If the FTP Server is configured to return a different format, the Server may support commands that alter the format.

For example, the following statements may be used for a Remote File Monitor task executing against an IBM iSeries (AS/400) FTP Server to ensure a correctly formatted file list:

```
site listfmt 1
site namefmt 1
```

If the Remote File Monitor task is executing against a Microsoft FTP Server and that Server is configured to return a file list in DOS format, the following statement will toggle the format to a Unix-style listing.

```
site dirstyle
```

Not all FTP client/server implementations provide statements that can alter the format of the **ls** command, which the Remote File Monitor task issues to generate the file listing. However, those implementations may support the **dir** command, which can return the file list in the correct format. If the **dir** command is specified in the Additional FTP Commands field, the Remote File Monitor task will use the results from that command to obtain the file sizes. In such cases, the FTP script will contain the **dir** and **ls** commands, but since statements in the Additional FTP Commands field are inserted into the script prior the **ls** command, the results from the **dir** command are parsed first.

If the **dir** command is necessary to obtain the correct file list format, simply specify that command along with the same value specified in the Remote Filename field. For example, if Remote Filename is **`/uagtests/data/somefile*.txt`**, enter the following in this field:

```
dir /uagtests/data/somefile*.txt
```

This statement also can be used with other commands to get the correct output. For example, if a Windows FTP Server is configured to return file lists in Windows format, use **site** and **dir** commands together in this field:

```
site dirstyle
dir /uagtests/data/somefile*.txt
```

Invalid statements or valid statements that do not control the file list format are ignored.

Transfer Mode	Transfer mode. Options: - Active - Passive - Extended Passive
Remote Server	Name or IP address of the remote server. This machine may or may not be the same as the Universal Agent machine. You also can specify a non-standard FTP, SFTP, or FTPS port: port number separated from the host name with a colon: "some.server.com:2222".
FTP Credentials	Login credentials that the Agent will use to access the FTP or SFTP server machine. If the Remote File Monitor server and Agent are running on the same machine, enter the same credentials as those you entered in the Credentials field.
FTP Credentials Variable	Indication of whether the FTP Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the FTP Credentials as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using an FTP Credentials reference to using an FTP Credentials variable, you must change the **FTP Credentials Variable** field to **Yes** and specify the FTP Credentials variable in the **FTP Credentials Unresolved** field. Conversely, to change from using an FTP Credentials variable to using an FTP Credentials reference, you must change the **FTP Credentials Variable** field to **No** and specify the FTP Credentials reference in the **FTP Credentials** field.
Remote Filename	Path and file name on the remote server. Note ⚠ If the task instance unexpectedly ends in Start Failure, review the Remote Filename for any leading or trailing whitespace (such as CRLF and CR), or any other unintended characters (such as extra slashes).
Use Regular Expression	Enables the use of a regular expression in the Remote Filename field.
Minimum File Size	If Monitor Type = Exists; Minimum file size required to check if the file exists.
Minimum File Scale	If Monitor Type = Exists; Scale for the Minimum File Size. Options: - Bytes - KB - MB

Job Card (z/OS only)	For z/OS, the job card information for the JCL statement. Example: `//File TransferJOB01 JOB (File Transfer,001),FANNY,MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY=&SYSUID,CLASS=A`
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	- -- None --
	  - If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  - If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	- Same Day Do not advance day.
	- Next Day Advance to the next day.
	- Next Business Day Advance to the next business day.
	- Sunday If today is not Sunday, advance to next Sunday.
	- Monday If today is not Monday, advance to next Monday.
	- Tuesday If today is not Tuesday, advance to next Tuesday.
	- Wednesday If today is not Wednesday, advance to next Wednesday.
	- Thursday If today is not Thursday, advance to next Thursday.
	- Friday If today is not Friday, advance to next Friday.
	- Saturday If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: - – None – - Duration - Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: - - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) - Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. - No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note ⚠ You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

<table>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.

Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

Viewing a Remote File Monitor Task Instance

When a Remote File Monitor task is launched, the Controller creates a task instance record of that task.

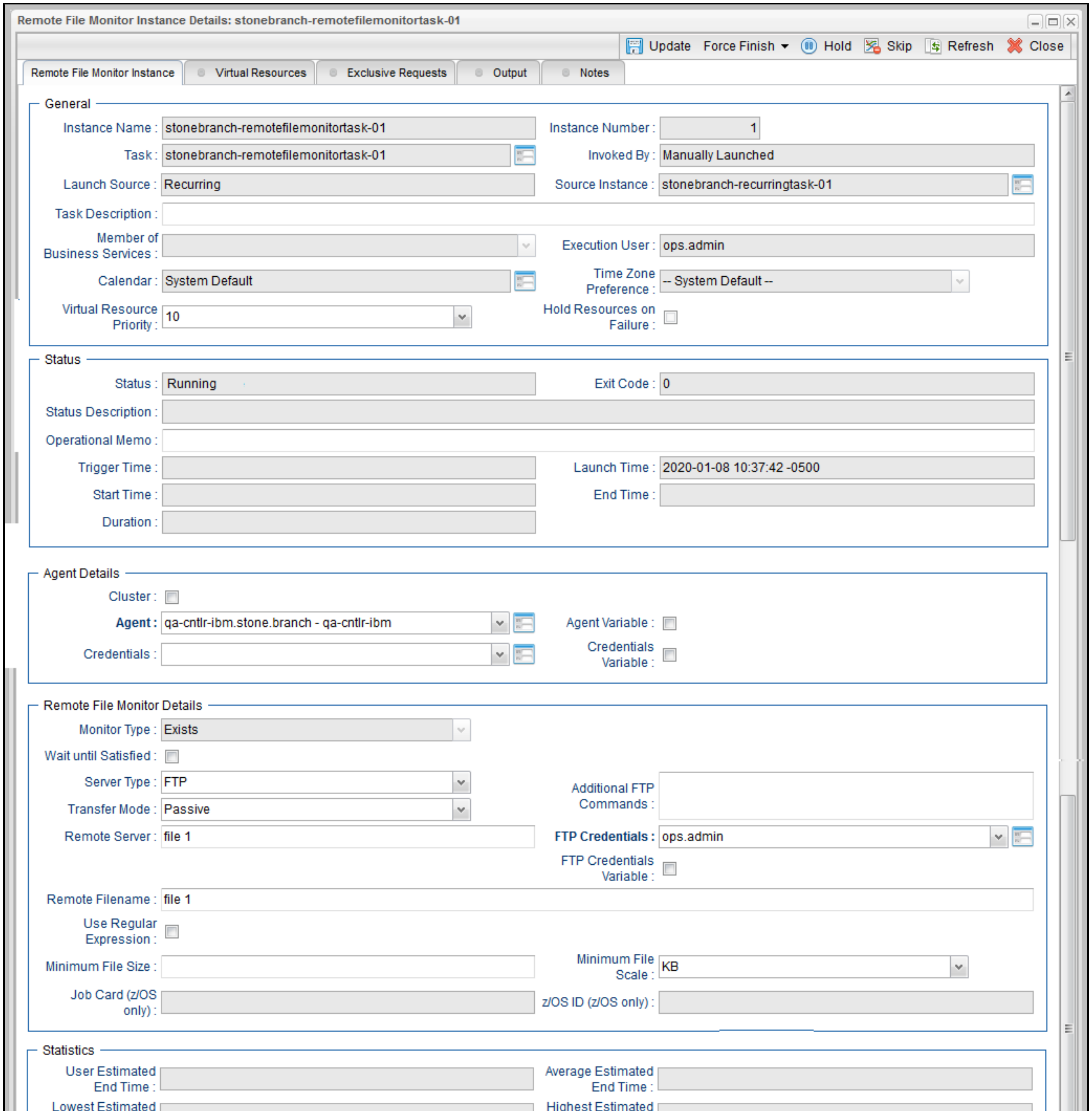
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Remote File Monitor Task Details for that task
- Activity Monitor
- Task Instances list

Remote File Monitor Task Instance Details

The following Remote File Monitor Task Instance Details contains information on the execution of the task shown in the Remote File Monitor Task Details.



Remote File Monitor Instance Details: stonebranch-remotefilemonitortask-01

General

- Instance Name : stonebranch-remotefilemonitortask-01
- Instance Number : 1
- Task : stonebranch-remotefilemonitortask-01
- Invoked By : Manually Launched
- Launch Source : Recurring
- Source Instance : stonebranch-recurringtask-01
- Task Description :
- Member of Business Services :
- Execution User : ops.admin
- Calendar : System Default
- Time Zone Preference : -- System Default --
- Virtual Resource Priority : 10
- Hold Resources on Failure : ☐

Status

- Status : Running
- Exit Code : 0
- Status Description :
- Operational Memo :
- Trigger Time :
- Launch Time : 2020-01-08 10:37:42 -0500
- Start Time :
- End Time :
- Duration :

Agent Details

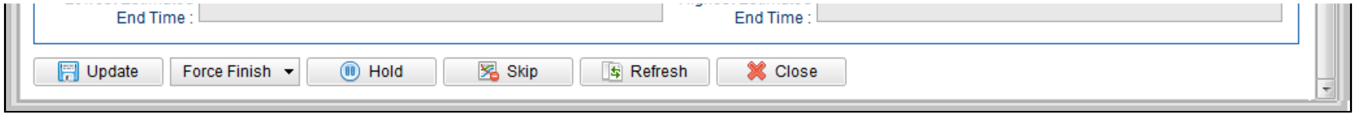
- Cluster : ☐
- **Agent :** qa-cntlr-ibm.stone.branch - qa-cntlr-ibm
- Agent Variable : ☐
- Credentials :
- Credentials Variable : ☐

Remote File Monitor Details

- Monitor Type : Exists
- Wait until Satisfied : ☐
- Server Type : FTP
- Additional FTP Commands :
- Transfer Mode : Passive
- Remote Server : file 1
- **FTP Credentials :** ops.admin
- FTP Credentials Variable : ☐
- Remote Filename : file 1
- Use Regular Expression : ☐
- Minimum File Size :
- Minimum File Scale : KB
- Job Card (z/OS only) :
- z/OS ID (z/OS only) :

Statistics

- User Estimated End Time :
- Average Estimated End Time :
- Lowest Estimated
- Highest Estimated



Remote File Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Remote File Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Invoked by	System-supplied; how the task instance was launched. Options: - Trigger: (Trigger Name) Instance was launched by the named trigger. - Workflow: (Workflow Name) Instance was launched by the named workflow. - Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Launch Source	System-supplied; Source from which this Recurring task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: - – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. - Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. - Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.

Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.

Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Remote File Monitor Details	This section contains assorted detailed information about the task instance.
Monitor Type	Unable to render {include} The included page could not be found.

Wait until Satisfied	If enabled, the task instance starts and continues to run until one of the following events occurs: - If Monitor Type = Exists and the specified file exists or appears, the task instance completes with a status of SUCCESS. - If Monitor Type = Missing and the specified file does not exist (or any part of the path is missing), or exists then disappears, the task instance completes with a status of SUCCESS. If not enabled, the task instance: 1. Starts. 2. Checks for the existence of the file. 3. Takes one of the following actions: - If Monitor Type = Exists and the file exists, the task instance completes with a status of SUCCESS. - If Monitor Type = Exists and the file does not exist (or any part of the path is missing), the task instance completes with a status of FAILURE. - If Monitor Type = Missing and the file exists, the task instance completes with a status of FAILURE. - If Monitor Type = Missing and the file does not exist (or any part of the path is missing), the task instance completes with a status of SUCCESS.
Poll Interval (Seconds)	If Wait until Satisfied is enabled: Frequency, in seconds, in which the Remote File Monitor will check to see if the file exists or is missing.
Maximum Polls	If Wait until Satisfied is enabled: Maximum number of times that the Remote File Monitor will check to see if the file exists or is missing.
Stable (Seconds)	If Wait until Satisfied is enabled: Period of time, in seconds, during which the file has not changed. For a Remote File Monitor task, a file's stability depends on its size. If the file size displayed in the FTP/SFTP output does not change during the specified number of seconds, the file is considered stable. In order for the task to reliably monitor the file's stability, the task must display a file's size in a well-known location. This means that the file list returned in the output must be in Unix long-listing format, as follows: `-rwxr-xr-x 1 owner group 12345 Jan 1 2016 somefile.txt` The task will only find the size if it is in the 5th column (for example, `12345` in the example above). The default file list format varies across different FTP client/server implementations, but most support additional commands that can force the output to the required format. The Additional FTP Commands field is provided to insert those statements into the FTP script that the file monitor task executes.
Server Type	Type of FTP server. Options: - FTP - SFTP - FTPS Note ⚠ The Remote File Monitor Task Exclude Protocols Universal Controller system property permits the exclusion of one or more, but not all, protocols (server types) from being selected.)

Additional FTP Commands

If Server Type is FTP or FTPS: Set of extra commands to be sent to the FTP server, such as optional statements that control the FTP output format.

The Agent depends on the file list being in Unix "long" format (that is, what you would see if you entered "ls -l" from the command shell) in order to correctly and reliably parse out file name and size (when a Stable period is specified). If the FTP Server is configured to return a different format, the Server may support commands that alter the format.

For example, the following statements may be used for a Remote File Monitor task executing against an IBM iSeries (AS/400) FTP Server to ensure a correctly formatted file list:

```
site listfmt 1
site namefmt 1
```

If the Remote File Monitor task is executing against a Microsoft FTP Server and that Server is configured to return a file list in DOS format, the following statement will toggle the format to a Unix-style listing.

```
site dirstyle
```

Not all FTP client/server implementations provide statements that can alter the format of the **ls** command, which the Remote File Monitor task issues to generate the file listing. However, those implementations may support the **dir** command, which can return the file list in the correct format. If the **dir** command is specified in the Additional FTP Commands field, the Remote File Monitor task will use the results from that command to obtain the file sizes. In such cases, the FTP script will contain the **dir** and **ls** commands, but since statements in the Additional FTP Commands field are inserted into the script prior the **ls** command, the results from the **dir** command are parsed first.

If the **dir** command is necessary to obtain the correct file list format, simply specify that command along with the same value specified in the Remote Filename field. For example, if Remote Filename is **`/uagtests/data/somefile*.txt`**, enter the following in this field:

```
dir /uagtests/data/somefile*.txt
```

This statement also can be used with other commands to get the correct output. For example, if a Windows FTP Server is configured to return file lists in Windows format, use **site** and **dir** commands together in this field:

```
site dirstyle
dir /uagtests/data/somefile*.txt
```

Invalid statements or valid statements that do not control the file list format are ignored.

Transfer Mode	Transfer mode. Options: - Active - Passive - Extended Passive
Remote Server	Name or IP address of the remote server. This machine may or may not be the same as the Universal Agent machine. You also can specify a non-standard FTP, SFTP, or FTPS port: port number separated from the host name with a colon: "some.server.com:2222".
FTP Credentials	Login credentials that the Agent will use to access the FTP or SFTP server machine. If the Remote File Monitor server and Agent are running on the same machine, enter the same credentials as those you entered in the Credentials field.
FTP Credentials Variable	Indication of whether the FTP Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the FTP Credentials as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an FTP Credentials reference to using an FTP Credentials variable, you must change the **FTP Credentials Variable** field to **Yes** and specify the FTP Credentials variable in the **FTP Credentials Unresolved** field. Conversely, to change from using an FTP Credentials variable to using an FTP Credentials reference, you must change the **FTP Credentials Variable** field to **No** and specify the FTP Credentials reference in the **FTP Credentials** field.
Remote Filename	Path and file name on the remote server. Note If the task instance unexpectedly ends in Start Failure, review the Remote Filename for any leading or trailing whitespace (such as CRLF and CR), or any other unintended characters (such as extra slashes).
Use Regular Expression	Enables the use of a regular expression in the Remote Filename field.
Minimum File Size	If Monitor Type = Exists; Minimum file size required to check if the file exists.
Minimum File Scale	If Monitor Type = Exists; Scale for the Minimum File Size. Options: - Bytes - KB - MB

Job Card (z/OS only)	For z/OS, the job card information for the JCL statement. Example: `//File TransferJOB01 JOB (File Transfer,001),FANNY,MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY=&SYSUID,CLASS=A`
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.

Output	Displays output generated from the process, if any, based on specifications provided by the user in the Automatic Output Retrieval fields in the task Details. If automatic output retrieval was not available or was not selected, output can be obtained by clicking the Retrieve Output button.
Notes	Lists all notes associated with this record.

Running a Remote File Monitor Task

You can run a Remote File Monitor task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the Remote File Monitor Tasks list or Remote File Monitor Task Details Action menu.
- As part of a Workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Built-In Variables

The built-in variables outlined below can be used in a Remote File Monitor task to pass data where appropriate:

- Task and Task Instance Variables
- Remote File Monitor Variables.

System Monitor Task

- Overview
- Built-In Variables
- Creating a System Monitor Task
    - System Monitor Task Details
    - System Monitor Task Details Field Descriptions
- Viewing a System Monitor Task Instance
    - System Monitor Task Instance Details
    - System Monitor Task Instance Details Field Descriptions
- Running a System Monitor Task
- Monitoring Task Execution

Overview

The System Monitor task allows you to monitor a specific remote machine and check for free disk space. You might use this task to check for sufficient disk space before running a task on it that requires a specific amount. In order for this task to execute, the remote machine must have Universal Agent running on it.

Built-In Variables

The following built-in variables can be used in a System Monitor task to pass data where appropriate:

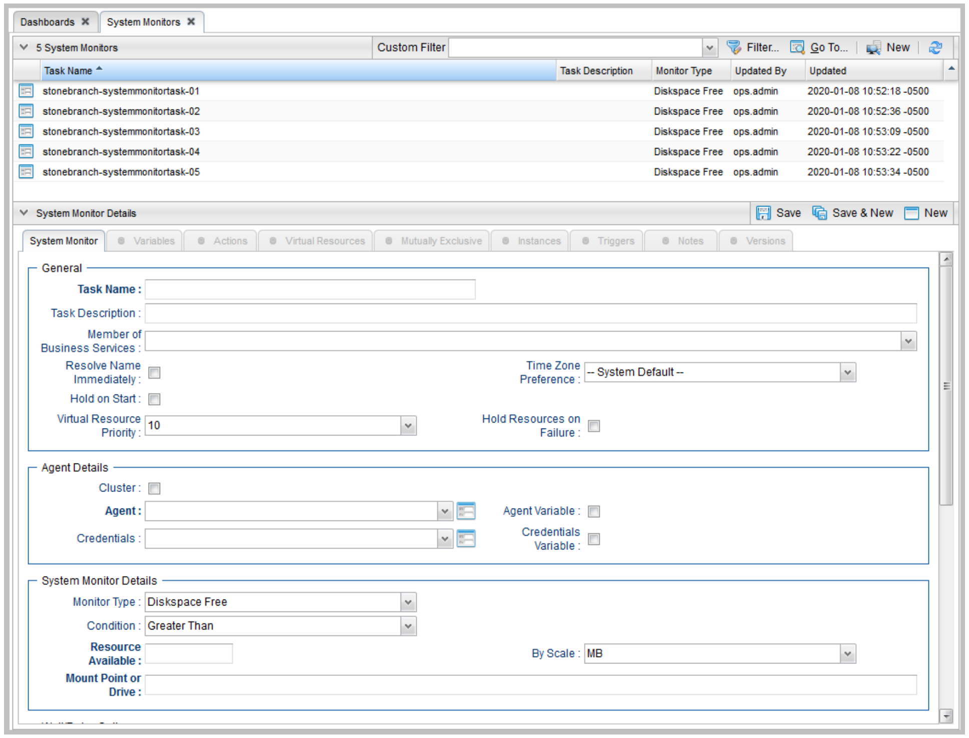
- Task Instance variables
- Agent-Based Task Instance variables
- System Monitor Task variables

Creating a System Monitor Task

Step 1

From the Automation Center navigation pane, select **Tasks > System Monitor Tasks**. The System Monitor Tasks list displays a list of all currently defined System Monitor tasks.

Below the list, System Monitor Task Details for a new System Monitor task displays.



Dashboards
System Monitors
5 System Monitors
Custom Filter
Filter...
Go To...
New
System Monitor Details
Save
Save & New
New
System Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Agent Details
Cluster :
Agent :
Agent Variable :
Credentials :
Credentials Variable :
System Monitor Details

Task Name	Task Description	Monitor Type	Updated By	Updated
stonebranch-systemmonitortask-01		Diskspace Free	ops.admin	2020-01-08 10:52:18 -0500
stonebranch-systemmonitortask-02		Diskspace Free	ops.admin	2020-01-08 10:52:36 -0500
stonebranch-systemmonitortask-03		Diskspace Free	ops.admin	2020-01-08 10:53:09 -0500
stonebranch-systemmonitortask-04		Diskspace Free	ops.admin	2020-01-08 10:53:22 -0500
stonebranch-systemmonitortask-05		Diskspace Free	ops.admin	2020-01-08 10:53:34 -0500

Task Name :
Task Description :
Member of Business Services :
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐
Monitor Type : Diskspace Free
Condition : Greater Than
Resource Available :
By Scale : MB
Mount Point or Drive :

Step 2

Enter/select Details for a new System Monitor task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

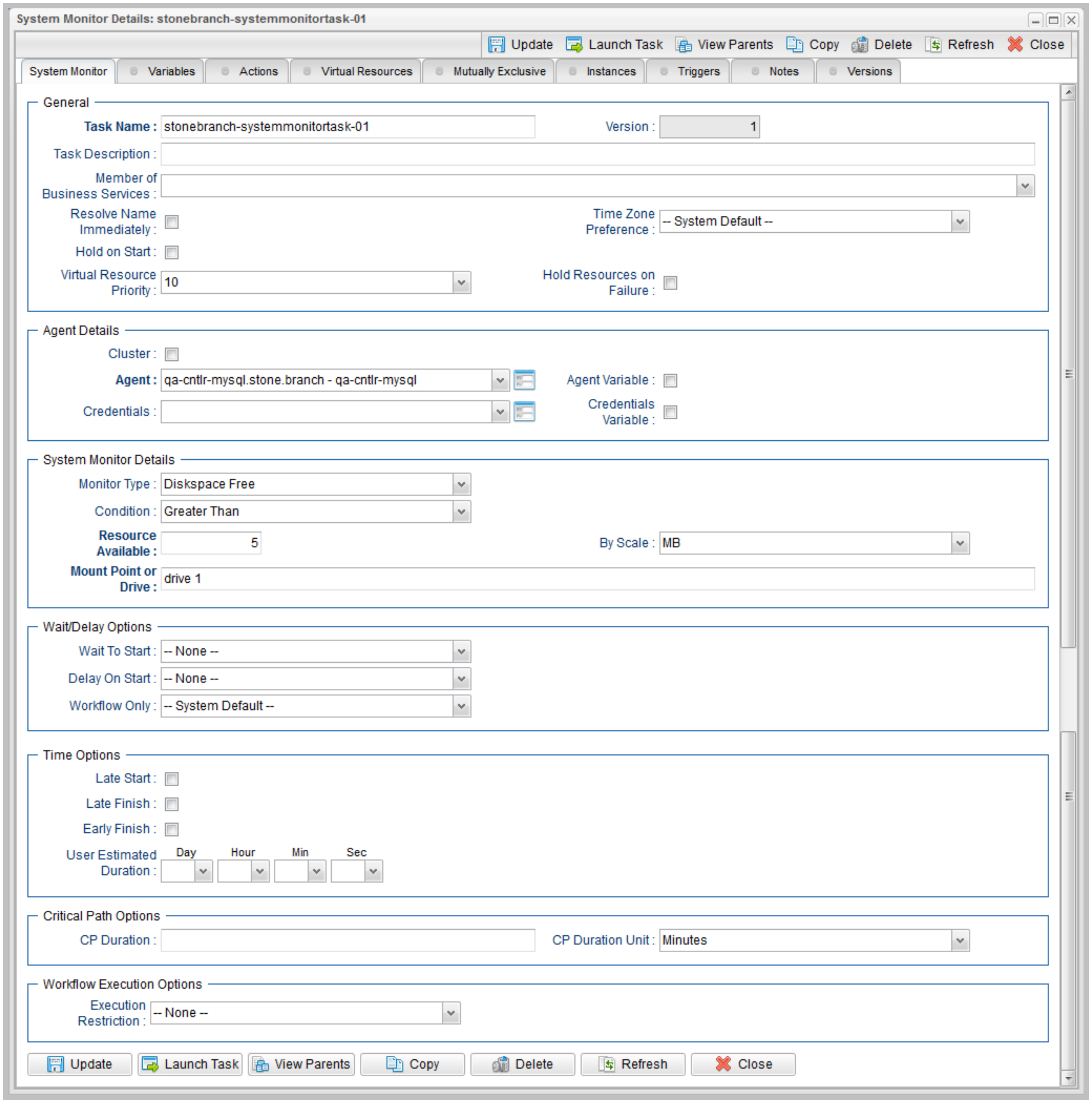
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

System Monitor Task Details

The following System Monitor Task Details is for an existing System Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the System Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the System Monitor Task Details.



Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
System Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

System Monitor Details: stonebranch-systemmonitortask-01

General

Task Name : stonebranch-systemmonitortask-01

Version : 1

Task Description :

Member of Business Services :

Resolve Name Immediately : ☐

Time Zone Preference : -- System Default --

Hold on Start : ☐

Virtual Resource Priority : 10

Hold Resources on Failure : ☐

Agent Details

Cluster : ☐

Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql

Agent Variable : ☐

Credentials :

Credentials Variable : ☐

System Monitor Details

Monitor Type : Diskspace Free

Condition : Greater Than

Resource Available : 5

By Scale : MB

Mount Point or Drive : drive 1

Wait/Delay Options

Wait To Start : -- None --

Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

System Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the System Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.

Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.
Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.

Broadcast	Displays only if Cluster is selected; Indication that selecting a Cluster Broadcast is required. Selecting Broadcast hides the Agent and Agent Cluster fields; you cannot select values for them.
Cluster Broadcast	Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.
Cluster Broadcast Variable	Indication of whether the Cluster Broadcast field is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the Cluster Broadcast as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Cluster Broadcast reference to using a Cluster Broadcast variable, you must change the **Cluster Broadcast Variable** field to **Yes** and specify the Cluster Broadcast variable in the **Cluster Broadcast Unresolved** field. Conversely, to change from using a Cluster Broadcast variable to using a Cluster Broadcast reference, you must change the **Cluster Broadcast Variable** field to **No** and specify the Cluster Broadcast reference in the **Cluster Broadcast** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
System Monitor Details	This section contains assorted detailed information about the task.
Monitor Type	Type of system status to monitor for. Options: • Diskspace Free

Condition	Specifies whether you want to check for free disk space greater than or less than the amount specified in the Resource Available field.
Resource Available	Used in conjunction with the By Scale field. Enter a number indicating the amount of the resource you are checking for. For example, to check to see if the machine has at least 1GB of free diskspace, select Greater Than in the Condition field, enter 1 in the Resource Available field, and select GB in the By Scale field.
By Scale	Scale of the number you entered in the Resource Available field. Options: KB (kilobyte), MB (megabyte), GB (gigabyte).
Mount Point or Drive	Use this field to limit the check to a specific mount point or drive, such as drive C: for Windows.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: - - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) - Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. - No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note ⚠ You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

<table>
<tr><td>Actions</td><td>
<p>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.</p>
<p>Events are:</p>

Task instance status
Exit codes
Late start
Late finish
Early finish

<p>Actions are:</p>
<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table>
</td></tr>
<tr><td>Virtual Resources</td><td>
<p>Lists all Virtual Resources to which this task is assigned.</p>
<p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>
</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

Viewing a System Monitor Task Instance

When a System Monitor task is launched, the Controller creates a task instance record of that task.

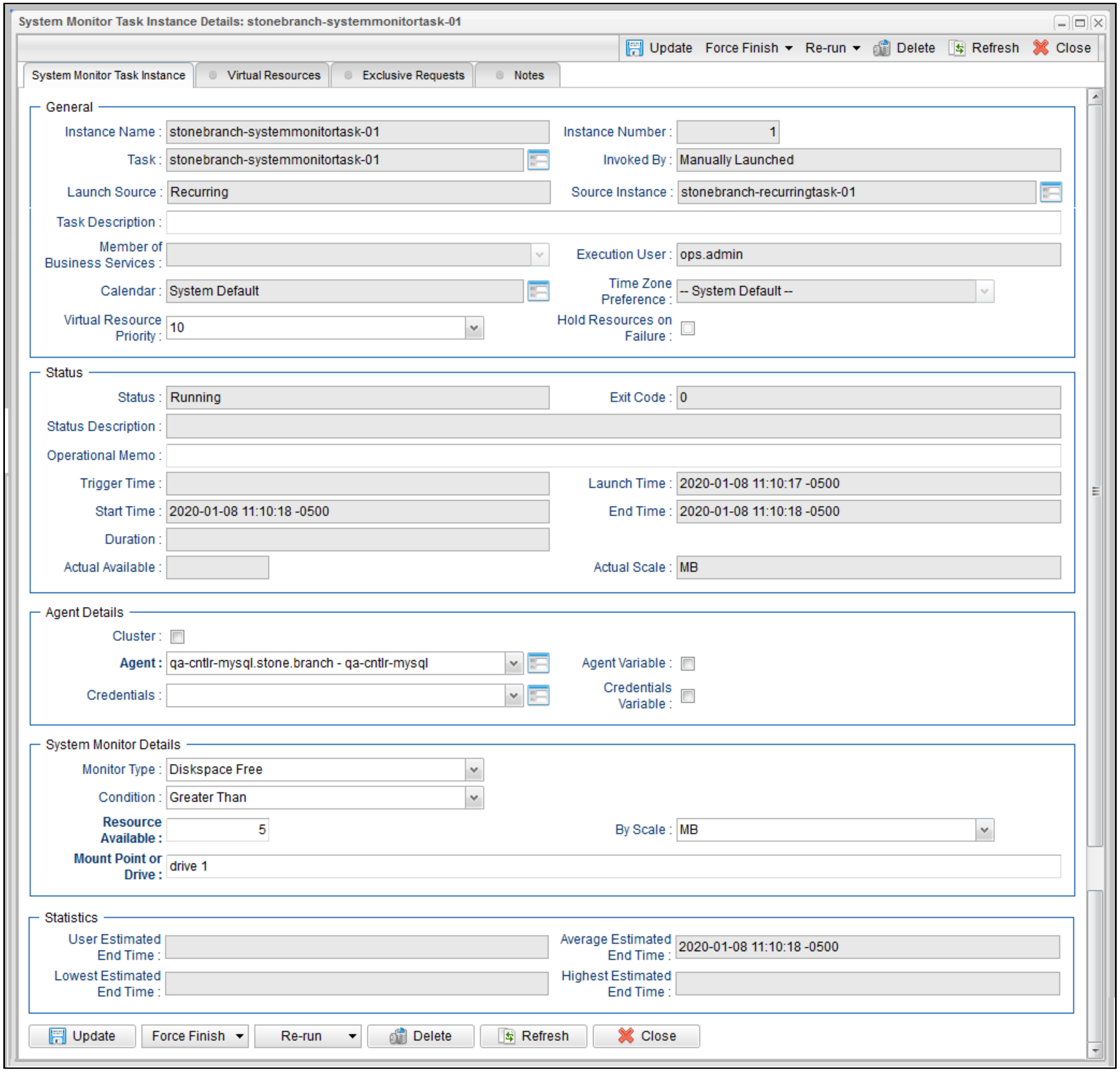
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the System Monitor Task Details for that task
- Activity Monitor
- Task Instances list

System Monitor Task Instance Details

The following System Monitor Task Instance Details contains information on the execution of the task shown in the System Monitor Task Details.



System Monitor Task Instance Details: stonebranch-systemmonitortask-01

General

Instance Name : stonebranch-systemmonitortask-01
Instance Number : 1
Task : stonebranch-systemmonitortask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Running
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-08 11:10:17 -0500
Start Time : 2020-01-08 11:10:18 -0500
End Time : 2020-01-08 11:10:18 -0500
Duration :
Actual Available :
Actual Scale : MB

Agent Details

Cluster : ☐
Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Agent Variable : ☐
Credentials :
Credentials Variable : ☐

System Monitor Details

Monitor Type : Diskspace Free
Condition : Greater Than
Resource Available : 5
By Scale : MB
Mount Point or Drive : drive 1

Statistics

User Estimated End Time :
Average Estimated End Time : 2020-01-08 11:10:18 -0500
Lowest Estimated End Time :
Highest Estimated End Time :

System Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in System Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Launch Source	System-supplied; Source from which this Recurring task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: - – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. - Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. - Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.

Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Actual Available	Amount of free disk space on the specified system.
By Scale	Scale of the number show in the Actual Available field. Options: • KB (kilobyte) • MB (megabyte) • GB (gigabyte)
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.

Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.
Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
System Monitor Details	This section contains assorted detailed information about the task instance.
Monitor Type	Type of system status to monitor for. Options: • Diskspace Free
Condition	Specifies whether you want to check for free disk space greater than or less than the amount specified in the Resource Available field.

Resource Available	Used in conjunction with the By Scale field. Enter a number indicating the amount of the resource you are checking for. For example, to check to see if the machine has at least 1GB of free diskspace, select Greater Than in the Condition field, enter 1 in the Resource Available field, and select GB in the By Scale field.
By Scale	Scale of the number you entered in the Resource Available field. Options: KB (kilobyte), MB (megabyte), GB (gigabyte).
Mount Point or Drive	Use this field to limit the check to a specific mount point or drive, such as drive C: for Windows.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day.
	Valid values:
	- -- None --
	  Advance to the next day if the specified late finish time is before the Created time of the task instance.
	- Same Day
	  Do not advance day.
	- Next Day
	  Advance to the next day.
	- Next Business Day
	  Advance to the next business day.
	- Sunday
	  If today is not Sunday, advance to next Sunday.
	- Monday
	  If today is not Monday, advance to next Monday.
	- Tuesday
	  If today is not Tuesday, advance to next Tuesday.
	- Wednesday
	  If today is not Wednesday, advance to next Wednesday.
	- Thursday
	  If today is not Thursday, advance to next Thursday.
	- Friday
	  If today is not Friday, advance to next Friday.
	- Saturday
	  If today is not Saturday, advance to next Saturday.
	- Nth Day
	  Advance to a specific number of days in the future.
	Default is – None --.

Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note ⚠ If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.
Notes	Lists all notes associated with this record.

Running a System Monitor Task

You can run a System Monitor task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the System Monitor Tasks list or System Monitor Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Variable Monitor Task

- Overview
- Variable Values to Monitor
    - Monitoring for the Current Value of a Variable
    - Monitoring for a Change in the Value of a Variable
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- Built-In Variables
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Overview

The Variable Monitor task allows you to monitor the value of a Global Variable.

Variable Values to Monitor

The Variable Monitor task lets you monitor for:

- Current value of a Global Variable.
- Change in the value of a Global Variable.
- Both current value and change in the value of a Global Variable.

Monitoring for the Current Value of a Variable

- If the Variable To Monitor exists and its current value matches the Variable Monitor conditions, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will transition to a **Faile** status.
- If the Variable To Monitor does not exist (or the Execution User does not have Read permission for the Global Variable) and the Value Condition field is **undefined**, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will transition to a **Failed** status.

Monitoring for a Change in the Value of a Variable

- The Variable Monitor task instance will not check the current value of the Variable To Monitor, but it will monitor for changes to the Variable To Monitor value. If a change to the Variable To Monitor value matches the Variable Monitor conditions, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will to continue to monitor for changes to the Variable To Monitor value.
- The Variable Monitor task instance will monitor indefinitely for the Variable Monitor conditions to be met unless you specify a value in the Time Limit field. The Variable Monitor task instance will transition to a **Failed** status if the Variable Monitor conditions are not met within the specified Time Limit.

Note

- A Variable Monitor task instance will not detect changes to a Global Variable Value if the Execution User does not have Read permission for the Global Variable.
- Setting the Global Variable Value to the same value from the Universal Controller user interface, CLI, or web service is not considered a change.
- Only changes to the Global Variable Name (case-insensitive) and Global Variable Value will be considered a change in value to the Global Variable. That is, changes to the Description and/or Member of Business Services fields alone will not be considered a change in value to the Global Variable.

Monitoring for Current Value of a Variable and a Change in the Value of a Variable

- If the Variable To Monitor exists and its current value matches the Variable Monitor conditions, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will continue to monitor as though Variable To Monitor is **Change**.
- If the Variable To Monitor does not exist (or the Execution User does not have Read permission for the Global Variable) and the Value Condition is **undefined**, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will continue to monitor as though Value Monitor Type is **Change**.

Built-In Variables

When the Variable Monitor conditions are met, the following built-in variables will be set for the Variable Monitor task instance:

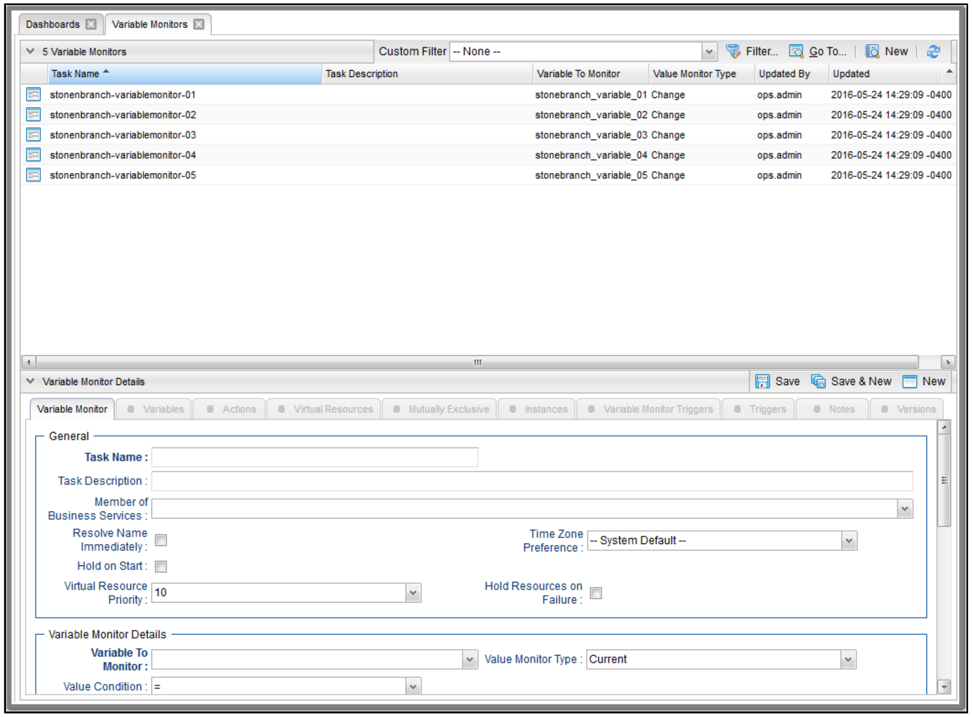
- Variable Monitor Task Instance/Trigger Variables
- Task Instance Variables

Creating a Variable Monitor Task

Step 1

From the Automation Center navigation pane, select **Tasks > Variable Monitor Tasks**. The Variable Monitor Tasks list displays a list of all currently defined Variable Monitor tasks.

Below the list, Variable Monitor Task Details for a new Variable Monitor task displays.



Custom Filter: -- None --

Task Name	Task Description	Variable To Monitor	Value Monitor Type	Updated By	Updated
stonenbranch-variablemonitor-01		stonebranch_variable_01	Change	ops.admin	2016-05-24 14:29:09 -0400
stonenbranch-variablemonitor-02		stonebranch_variable_02	Change	ops.admin	2016-05-24 14:29:09 -0400
stonenbranch-variablemonitor-03		stonebranch_variable_03	Change	ops.admin	2016-05-24 14:29:09 -0400
stonenbranch-variablemonitor-04		stonebranch_variable_04	Change	ops.admin	2016-05-24 14:29:09 -0400
stonenbranch-variablemonitor-05		stonebranch_variable_05	Change	ops.admin	2016-05-24 14:29:09 -0400

Variable Monitor Details

General

Task Name :

Task Description :

Member of Business Services :

Resolve Name Immediately : ☐

Time Zone Preference : -- System Default --

Hold on Start : ☐

Virtual Resource Priority : 10

Hold Resources on Failure : ☐

Variable Monitor Details

Variable To Monitor :

Value Monitor Type : Current

Value Condition : =

Step 2

Enter/select Details for a new Variable Monitor task, using the field descriptions below as a guide.

- Required fields display in **boldface**.
- Default values for fields, if available, display automatically.

To display more of the Details fields on the screen, you can either:

- Use the scroll bar.
- Temporarily hide the list above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

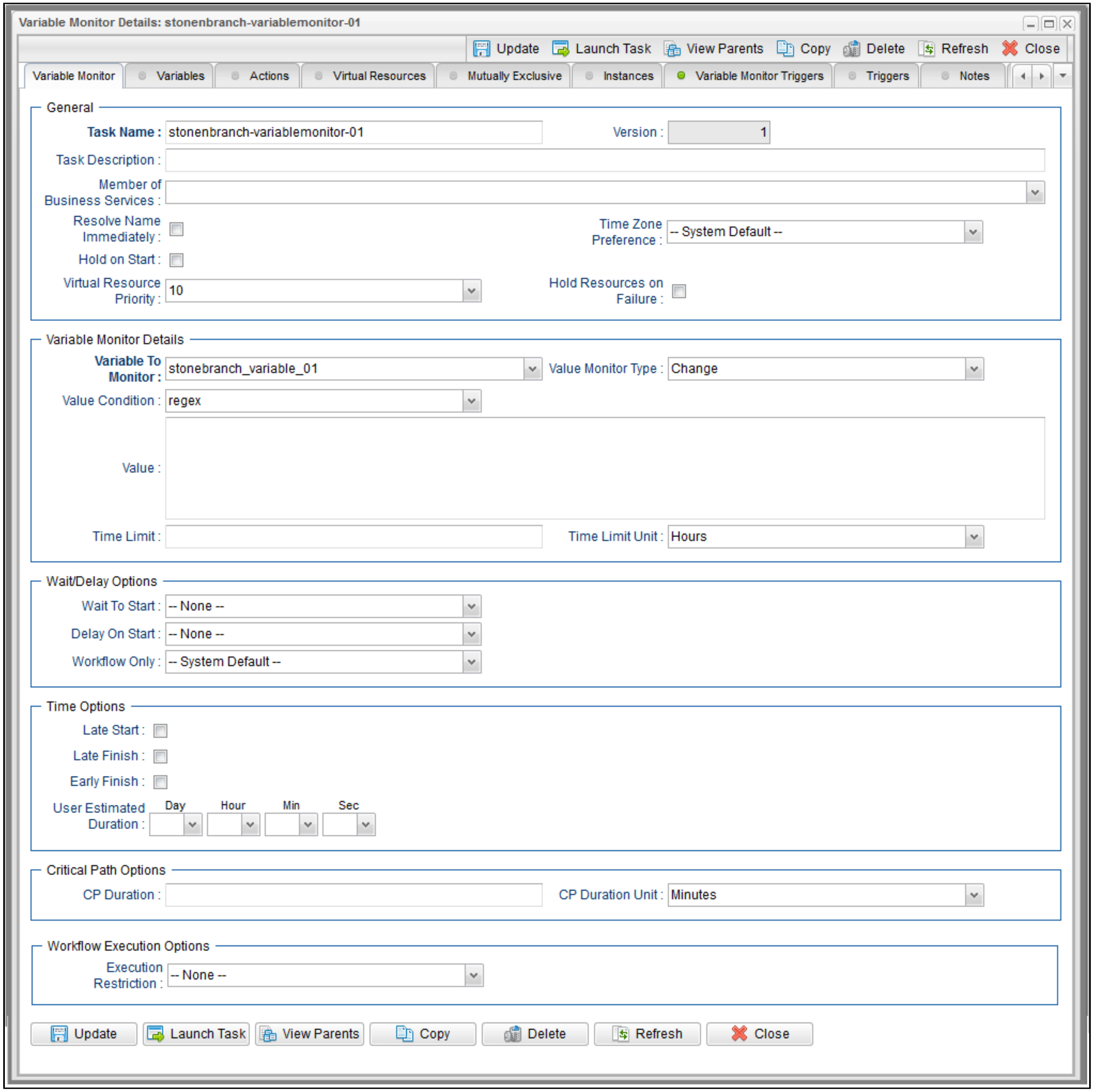
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Variable Monitor Task Details

The following Variable Monitor Task Details is for an existing Variable Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Variable Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Variable Monitor Task Details.


Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Variable Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Variable Monitor Triggers
Triggers
Notes

Variable Monitor Details: stonenbranch-variablemonitor-01

General

Task Name : stonenbranch-variablemonitor-01

Version : 1

Task Description :

Member of Business Services :

Resolve Name Immediately : ☐

Time Zone Preference : -- System Default --

Hold on Start : ☐

Virtual Resource Priority : 10

Hold Resources on Failure : ☐

Variable Monitor Details

Variable To Monitor : stonebranch_variable_01

Value Monitor Type : Change

Value Condition : regex

Value :

Time Limit :

Time Limit Unit : Hours

Wait/Delay Options

Wait To Start : -- None --

Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐

Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

Variable Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Variable Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.

Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Variable Monitor Details	This section contains assorted detailed information about the task.
Variable to Monitor	Name of the variable to monitor. Variables are supported.
Value Monitor Type	Type of monitoring to be done on the Variable value. Options: • Current (monitor the current value) • Change (monitor for a change in value) • Current/Change (monitor for both the current value and a change in value) Note If the Variable Monitor task was created from a Variable Monitor trigger, Value Monitor Type is set to Change by default and is marked as read-only, since Change is the only valid value when sued for a trigger.
Value Condition	Condition for the value of the variable being monitored. Options: • – None – • = • != • > • >= • < • <= • regex • undefined
Value	If Value Condition = =, !=, >, >=, <, <=, or regex; Value (up to a maximum 4000 characters) of the variable being monitored.

Time Limit	If Value Monitor Type = Change or Current/Change; Used for Variable Monitor tasks not associated with a trigger; Amount of time (in units specified by Time Limit Unit) to monitor for the Variable Monitor conditions to be met. The Time Limit duration is always relative to the start time of the Variable Monitor task instance. Note ⚠ If the Variable Monitor task was created from a Variable Monitor trigger, Time Limit is not allowed, since Variable Monitor Type is Change and cannot be updated.
Time Limit Unit	If Value Monitor Type = Change or Current/Change; Unit of time to use for Time Limit. Options: • Minutes • Hours (default) • Days
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: - Seconds - Minutes - Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: - -- None -- No restriction for this task. - Run Restriction for when this task will be run. - Skip Restriction for when this task will be skipped. - Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: - – None – No period of restriction for this task. - Before Restriction is valid if the date is before the Before Date value. - After Restriction is valid if the date is after the After Date value. - Span Restriction is valid if the date is before the Before Date value and after After Date value. - On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

<table>
<tr><td>Actions</td><td>
<p>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.</p>
<p>Events are:</p>

Task instance status
Exit codes
Late start
Late finish
Early finish

<p>Actions are:</p>
<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table>
</td></tr>
<tr><td>Virtual Resources</td><td>
<p>Lists all Virtual Resources to which this task is assigned.</p>
<p>If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</p>
</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Variable Monitor Triggers</td><td>Lists all Variable Monitor triggers that reference this task in the Variable Monitor field of the trigger Details; that is; a list of all Variable Monitor triggers that execute this task. Also allows you to add new triggers. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
</table>

Versions	Stores copies of all previous versions of the current record. See Record Versioning.

Viewing a Variable Monitor Task Instance

When a Variable Monitor task is launched, the Controller creates a task instance record of that task.

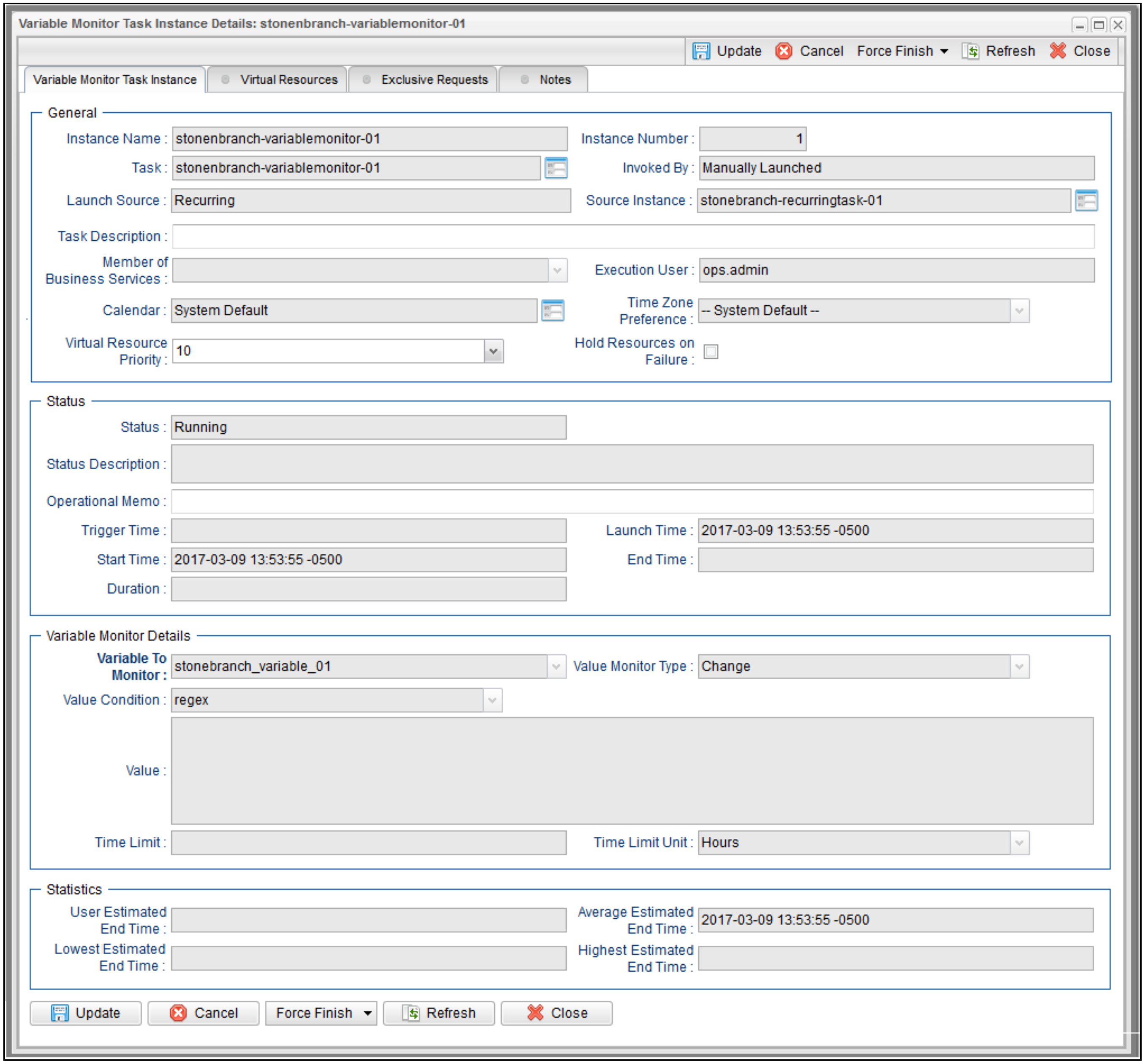
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Variable Monitor Task Details for that task
- Activity Monitor
- Task Instances list

Variable Monitor Task Instance Details

The following Variable Monitor Task Instance Details contains information on the execution of the task shown in the Variable Monitor Task Details.


Variable Monitor Task Instance Details: stonenbranch-variablemonitor-01
Update
Cancel
Force Finish
Refresh
Close
Variable Monitor Task Instance
Virtual Resources
Exclusive Requests
Notes

General

Instance Name : stonenbranch-variablemonitor-01
Instance Number : 1
Task : stonenbranch-variablemonitor-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Running
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2017-03-09 13:53:55 -0500
Start Time : 2017-03-09 13:53:55 -0500
End Time :
Duration :

Variable Monitor Details

Variable To Monitor : stonebranch_variable_01
Value Monitor Type : Change
Value Condition : regex
Value :
Time Limit :
Time Limit Unit : Hours

Statistics

User Estimated End Time :
Average Estimated End Time : 2017-03-09 13:53:55 -0500
Lowest Estimated End Time :
Highest Estimated End Time :

Update
Cancel
Force Finish
Refresh
Close

Variable Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Variable Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Invoked by	System-supplied; how the task instance was launched. Options: - Trigger: (Trigger Name) Instance was launched by the named trigger. - Workflow: (Workflow Name) Instance was launched by the named workflow. - Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Launch Source	System-supplied; Source from which this Recurring task was launched. Options: - Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. - Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. - Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. - Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. - Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. - Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. - Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: - – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. - Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. - Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.

Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Variable Monitor Details	This section contains assorted detailed information about the task instance.
Variable to Monitor	Name of the variable to monitor. Variables are supported.
Value Monitor Type	Type of monitoring to be done on the Variable value. Options: • Current (monitor the current value) • Change (monitor for a change in value) • Current/Change (monitor for both the current value and a change in value) Note ⚠ If the Variable Monitor task was created from a Variable Monitor trigger, Value Monitor Type is set to Change by default and is marked as read-only, since Change is the only valid value when sued for a trigger.

Value Condition	Condition for the value of the variable being monitored. Options: - – None – - = - != - > - >= - < - <= - regex - undefined
Value	If Value Condition = =, !=, >, >=, <, <=, or regex; Value (up to a maximum 4000 characters) of the variable being monitored.
Time Limit	If Value Monitor Type = Change or Current/Change; Used for Variable Monitor tasks not associated with a trigger; Amount of time (in units specified by Time Limit Unit) to monitor for the Variable Monitor conditions to be met. The Time Limit duration is always relative to the start time of the Variable Monitor task instance. Note If the Variable Monitor task was created from a Variable Monitor trigger, Time Limit is not allowed, since Variable Monitor Type is Change and cannot be updated.
Time Limit Unit	If Value Monitor Type = Change or Current/Change; Unit of time to use for Time Limit. Options: - Minutes - Hours (default) - Days
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: - Time - Flag the task if it starts after the specified time. - Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint= Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (**`ops_exclusive_order`**) for this task instance.
Notes	Lists all notes associated with this record.

Running a Variable Monitor Task

You can run a Variable Monitor task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the Variable Monitor Tasks list or Variable Monitor Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Email Monitor Task

- Overview
- Built-In Variables
- Creating an Email Monitor Task
    - Email Monitor Task Details
    - Email Monitor Task Details Field Descriptions
    - Advanced Criteria
    - Advanced Criteria Field Descriptions
- Viewing an Email Monitor Task Instance
    - Email Monitor Task Instance Details
    - Email Monitor Task Instance Details Field Descriptions
- Running an Email Monitor Task
- Monitoring Task Execution

Overview

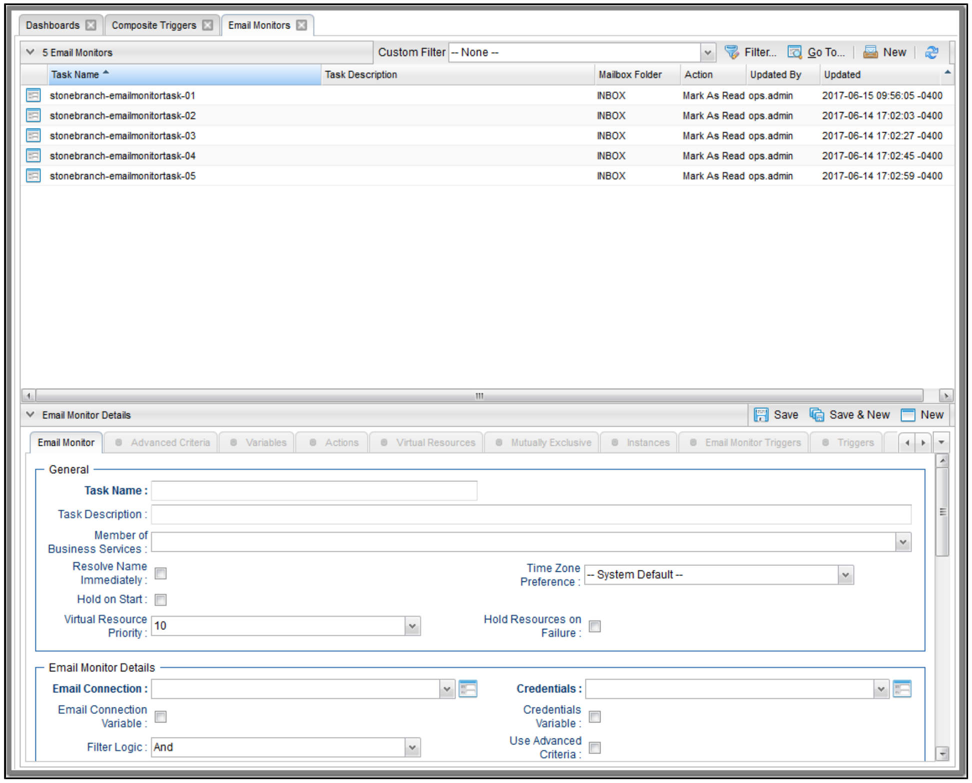
The Email Monitor task allows you to monitor a Mailbox Folder for emails matching specific criteria, and to take action on any matching emails.

Built-In Variables

The following built-in variables can be used in an Email Monitor task to pass data where appropriate:

- Task Instance variables
- Email Monitor Task variables

Creating an Email Monitor Task

Step 1	From the Automation Center navigation pane, select **Tasks > Email Monitors**. The Email Monitor Tasks list displays a list of all currently defined Email Monitor tasks. Below the list, Email Monitor Task Details for a new Email Monitor task displays.  Dashboards Composite Triggers Email Monitors 5 Email Monitors Custom Filter Filter... Go To... New Email Monitor Details Save Save & New New Email Monitor Advanced Criteria Variables Actions Virtual Resources Mutually Exclusive Instances Email Monitor Triggers Triggers General Task Name : Task Description : Member of Business Services : Resolve Name Immediately : ☐ Hold on Start : ☐ Hold Resources on Failure : ☐ Email Monitor Details Email Connection : Credentials : Email Connection Variable : ☐ Credentials Variable : ☐ Use Advanced Criteria : ☐
Step 2	Enter/select Details for a new Email Monitor task, using the field descriptions below as a guide. • Required fields display in **boldface**. • Default values for fields, if available, display automatically. To display more of the Details fields on the screen, you can either: • Use the scroll bar. • Temporarily hide the list above the Details. • Click the **New** button above the list to display a pop-up version of the Details.
Step 3	Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Custom Filter: -- None --

Task Name	Task Description	Mailbox Folder	Action	Updated By	Updated
stonebranch-emailmonitortask-01		INBOX	Mark As Read	ops.admin	2017-06-15 09:56:05 -0400
stonebranch-emailmonitortask-02		INBOX	Mark As Read	ops.admin	2017-06-14 17:02:03 -0400
stonebranch-emailmonitortask-03		INBOX	Mark As Read	ops.admin	2017-06-14 17:02:27 -0400
stonebranch-emailmonitortask-04		INBOX	Mark As Read	ops.admin	2017-06-14 17:02:45 -0400
stonebranch-emailmonitortask-05		INBOX	Mark As Read	ops.admin	2017-06-14 17:02:59 -0400

Time Zone Preference : -- System Default --

Virtual Resource Priority : 10

Filter Logic : And

Note

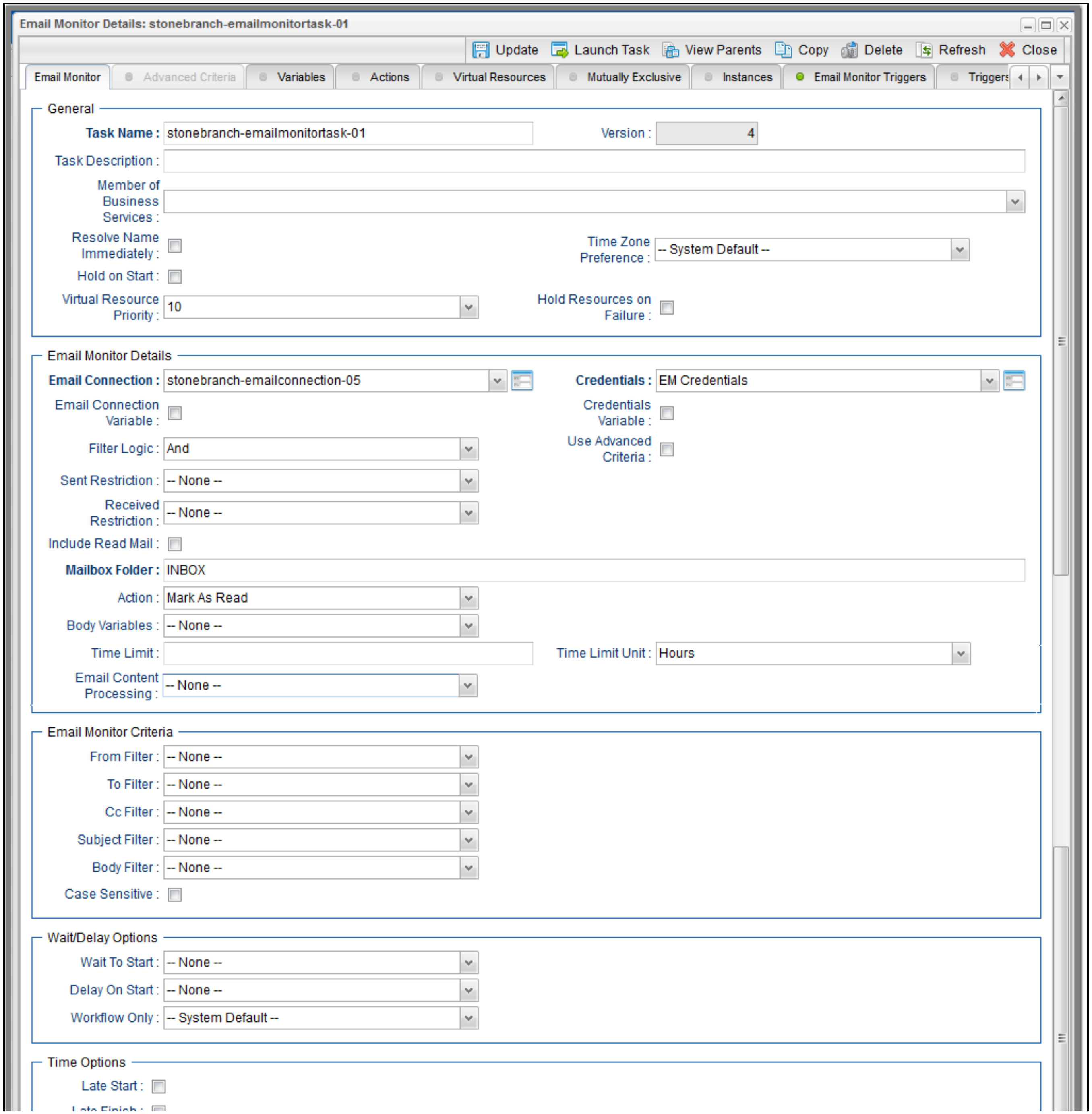
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

Email Monitor Task Details

The following Email Monitor Task Details is for an existing Email Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Email Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Email Monitor Task Details.


Email Monitor Details: stonebranch-emailmonitortask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Email Monitor
Advanced Criteria
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Email Monitor Triggers
Triggers

General

Task Name : stonebranch-emailmonitortask-01

Version : 4

Task Description :

Member of Business Services :

Resolve Name Immediately : ☐

Time Zone Preference : -- System Default --

Hold on Start : ☐

Virtual Resource Priority : 10

Hold Resources on Failure : ☐

Email Monitor Details

Email Connection : stonebranch-emailconnection-05

Credentials : EM Credentials

Email Connection Variable : ☐

Credentials Variable : ☐

Filter Logic : And

Use Advanced Criteria : ☐

Sent Restriction : -- None --

Received Restriction : -- None --

Include Read Mail : ☐

Mailbox Folder : INBOX

Action : Mark As Read

Body Variables : -- None --

Time Limit :

Time Limit Unit : Hours

Email Content Processing : -- None --

Email Monitor Criteria

From Filter : -- None --

To Filter : -- None --

Cc Filter : -- None --

Subject Filter : -- None --

Body Filter : -- None --

Case Sensitive : ☐

Wait/Delay Options

Wait To Start : -- None --

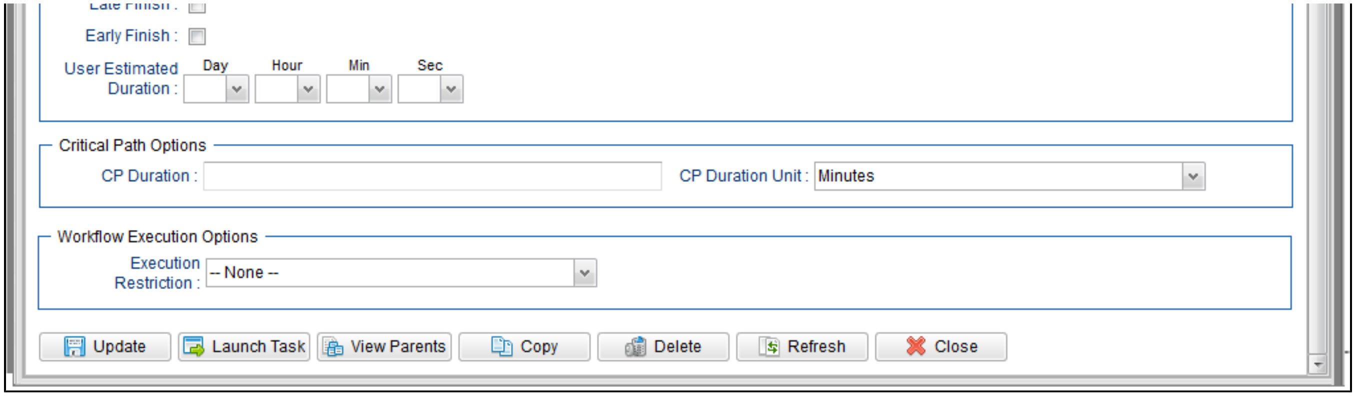
Delay On Start : -- None --

Workflow Only : -- System Default --

Time Options

Late Start : ☐

Late Finish : ☐



Early Finish : ☐

User Estimated Duration : Day Hour Min Sec

Critical Path Options

CP Duration :

CP Duration Unit : Minutes

Workflow Execution Options

Execution Restriction : -- None --

Email Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Email Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: - – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. - Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. - Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Email Monitor Details	This section contains assorted detailed information about the task.
Email Connection	Required; Name of an incoming Email Connection (Type = Incoming). An Email Connection specifies information about an outgoing or incoming email server. Enter the name of an existing incoming Email Connection, select an existing incoming Email Connection from the drop-down list, or clear the Email Connection field and click the Details icon to create a new Email Connection (Incoming will be pre-selected in the Type field).
Email Connection Variable	Indication of whether the Email Connection field is a reference field for selecting a specific Email Connection (unchecked) or a text field for specifying the Email Connection as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using an Email Connection reference to using an Email Connection variable, you must change the **Email Connection Variable** field to **Yes** and specify the Email Connection variable in the **Email Connection Unresolved** field. Conversely, to change from using an Email Connection variable to using an Email Connection reference, you must change the **Email Connection Variable** field to **No** and specify the Email Connection reference in the **Email Connection** field.
Credentials	Credentials to be used to connect to the Email server.

Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Filter Logic	Logic to apply when combining filters. If Use Advanced Criteria is enabled, it is the logic to apply when combining Advanced Criteria records. Options: • And (default) • Or
Use Advanced Criteria	If enabled, use advanced criteria specified under the Advanced Criteria tab for the Email Monitor filter criteria.
Sent Restriction	Type of Sent restriction to apply. Options: • - - None - - (default) • On • Before • After • Span
Sent On	If Sent Restriction = On; Sent On restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow
Sent On Date	If Sent On = Date; Specific date for the Sent On restriction value.

Sent Before	If Sent Restriction = Before; Sent Before restriction value. Options: - Date (default) - Today - Yesterday - Tomorrow - Launch Time - Relative
Sent Before Date	If Sent Before = Date; Specific date for the Sent Before restriction value.
Sent Before Offset	If Sent Before = Relative; Offset, relative to the last launch time, for the Sent Before restriction value. Format: [+/-]hh:mm
Sent After	If Sent Restriction = After; Sent After restriction value. Options: - Date (default) - Today - Yesterday - Tomorrow - Launch Time - Relative
Sent After Date	If Sent After = Date; Specific date for the Sent After restriction value.
Sent After Offset	If Sent After = Relative; Offset, relative to the last launch time, for the Sent After restriction value.
Received Restriction	Type of Received restriction to apply. Options: - - - None - - (default) - On - Before - After - Span

Received On	If Received Restriction = On; Received On restriction value. Options: - Date (default) - Today - Yesterday - Tomorrow
Received On Date	If Received On = Date; Specific date for the Received On restriction value.
Received Before	If Received Restriction = Before; Received Before restriction value. Options: - Date (default) - Today - Yesterday - Tomorrow - Relative
Received Before Date	If Received Before = Date; Specific date for the Received Before restriction value.
Received Before Offset	If Received Before = Relative; Offset, relative to the last launch time, for the Received Before restriction value. Format: [+/-]hh:mm
Received After	If Received Restriction = After; Received After restriction value. Options: - Date (default) - Today - Yesterday - Tomorrow - Relative
Received After Date	If Received After = Date; Specific date for the Received After restriction value.
Received After Offset	If Received After = Relative; Offset, relative to the last launch time, for the Received After restriction value.
Include Read Mail	If enabled, specifies that mail marked as read should be included by the filter.

Mailbox Folder	Mailbox folder to monitor on the server specified in the selected Email Connection.
Action	Action to take on mail that matches the filter. Options: - Mark As Read (default) - Delete - Delete/Mark As Read - Move - Move/Mark As Read
Move To Trash	If Action = Delete or Delete/Mark As Read; If enabled, mail matching the filter will be moved to the trash folder specified in the Email Connection.
Mailbox Folder Destination	If Action = Move or Move/Mark As Read; Mailbox folder to move matched mail into.
Body Variables	Specifies whether to parse the Email body for name/value pairs to create variables from. Options: - - - None - - No processing of the Email body will occur. - Within Body Entire body of the Email will be scanned for a "=" (equal sign) and any lines containing a "=" will be variablized as long as the text to the left of the "=" conforms to the naming standards for variables. - Within Default Markers Marker begin and end values are defined by the Email Body Default Begin Marker and Email Body Default End Marker Universal Controller system properties. - Within Custom Markers Marker begin and end values are defined in the Begin Marker and #End Marker fields. If markers are used, all lines of the Email body between the begin and end markers will be variablized in accordance to java properties. Any lines of the Email body outside the markers will be ignored w/r variablization.
Begin Marker	If Body Variables is Within Customer Markers; Begin marker for the Body Variables.
End Marker	If Body Variables is Within Customer Markers; End marker for the Body Variables.
Time Limit	Used for Email Monitor tasks not associated with a trigger; Amount of time (in units specified by Time Limit Unit) to monitor for the Email Monitor conditions to be met. The Time Limit duration is always relative to the start time of the Email Monitor task instance.

Time Limit Unit	Unit of time to use for Time Limit. Options: - Minutes - Hours (default) - Days
Email Content Processing	Method for determining the success or failure of this task based on Email content. Options: - - - None - - - Success Body Contains - Failure Body Contains - Success Body Does Not Contain - Failure Body Does Not Contain - Success Subject Contains - Failure Subject Contains - Success Subject Does Not Contain - Failure Subject Does Not Contain Default is - - None - -.
Content Value	Required if Email Content Processing is not - - None - -; Content Value to be matched in the email.
Case Sensitive Content	If Email Content Processing is not - - None - -; Indication of whether or not matching will be performed in a case sensitive manner.
Email Monitor Criteria	This section contains criteria for selecting emails to monitor.
From Filter	Type of From filter condition to apply. Options: - - - None - - (default) - Equals - Contains - Does Not Equal - Does Not Contain - Regex
From	If From Filter = any value other than - - None - -; From filter condition value.

To Filter	Type of To filter condition to apply. Options: - - - None - - (default) - Equals - Contains - Does Not Equal - Does Not Contain - Is Blank - Is Not Blank - Regex
To	If To Filter = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; To filter condition value.
Cc Filter	Type of Cc filter condition to apply. Options: - - - None - - (default) - Equals - Contains - Does Not Equal - Does Not Contain - Is Blank - Is Not Blank - Regex
Cc	If Cc Filter = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; Cc filter condition value.
Subject Filter	Type of Subject filter condition to apply. Options: - - - None - - (default) - Equals - Starts With - Contains - Ends With - Does Not Equal - Does Not Start With - Does Not Contain - Does Not End With - Is Blank - Is Not Blank - Regex

Subject	If Subject Filter = anything other than - - None - -, Is Blank, or Is Not Blank; Subject filter condition value.
Body Filter	Type of Body filter condition to apply. Options: - - - None - - (default) - Equals - Starts With - Contains - Ends With - Does Not Equal - Does Not Start With - Does Not Contain - Does Not End With - Is Blank - Is Not Blank - Regex
Body	If Body Filter = anything other than - - None - -, Is Blank, or Is Not Blank; Body filter condition value. Note If an email being monitored does not contain the body in plain text, but only in HTML format, a plain text body will be generated from the HTML body content.
Case Sensitive	If enabled, text-based filters should be treated as case-sensitive.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	  Do not advance day.
	• Next Day
	  Advance to the next day.
	• Next Business Day
	  Advance to the next business day.
	• Sunday
	  If today is not Sunday, advance to next Sunday.
	• Monday
	  If today is not Monday, advance to next Monday.
	• Tuesday
	  If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	  If today is not Wednesday, advance to next Wednesday.
	• Thursday
	  If today is not Thursday, advance to next Thursday.
	• Friday
	  If today is not Friday, advance to next Friday.
	• Saturday
	  If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related statistics for task instances of the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: - -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: - -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: - Time - Flag the task if it finishes before the specified time (see Early Finish Time). - Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: - Percentage - Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: - -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. - Same Day Do not advance day. - Next Day Advance to the next day. - Next Business Day Advance to the next business day. - Sunday If today is not Sunday, advance to next Sunday. - Monday If today is not Monday, advance to next Monday. - Tuesday If today is not Tuesday, advance to next Tuesday. - Wednesday If today is not Wednesday, advance to next Wednesday. - Thursday If today is not Thursday, advance to next Thursday. - Friday If today is not Friday, advance to next Friday. - Saturday If today is not Saturday, advance to next Saturday. - Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for task instances of the task.
First Time Ran	System-supplied; date and time this task first ran.
Last Time Ran	System-supplied; date and time the task last ran.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.

Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch Task	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. Note You cannot delete a task if it is either: - Specified in an enabled Trigger. - The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Advanced Criteria	If the Use Advanced Criteria field is enabled; advanced search criteria to use for Email Monitor filter criteria.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

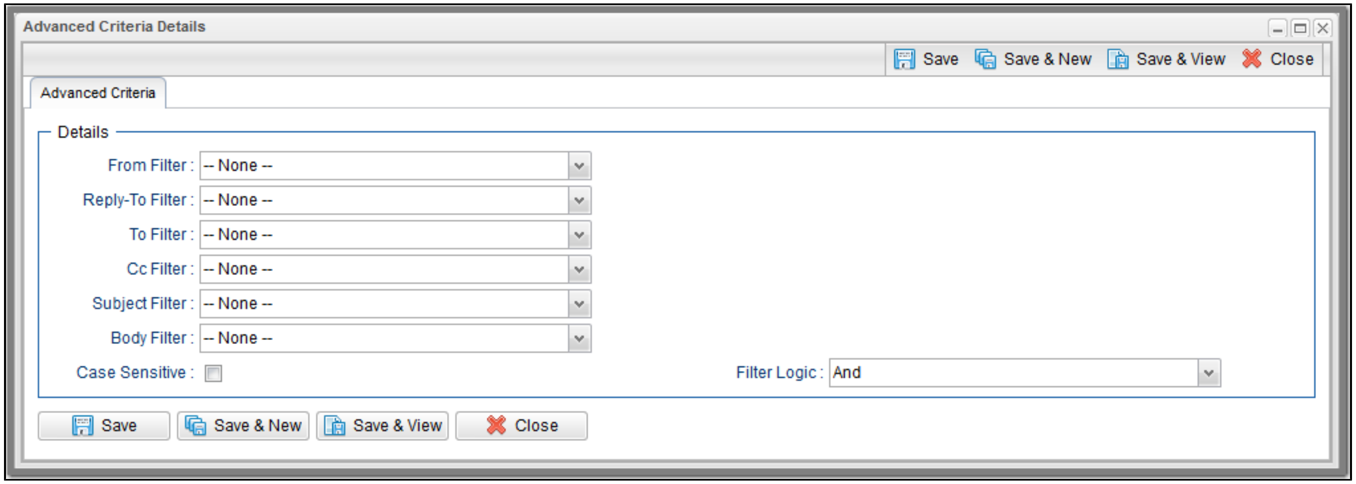
<table>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.

Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Email Monitor Triggers</td><td>Lists all Email Monitor triggers that reference this task in the Email Monitor field of the trigger Details; that is, a list of all Email Monitor triggers that execute this task. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
</table>

Versions	Stores copies of all previous versions of the current record. See Record Versioning.

Advanced Criteria



Advanced Criteria Details

Details

From Filter : -- None --

Reply-To Filter : -- None --

To Filter : -- None --

Cc Filter : -- None --

Subject Filter : -- None --

Body Filter : -- None --

Case Sensitive : ☐

Filter Logic : And

Advanced Criteria Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Advanced Criteria Details of an Email Monitor Task.

Field Name	Description
From Filter	Type of From filter condition to apply. Options: - - - None - - (default) - Equals - Contains - Does Not Equal - Does Not Contain - Regex

Reply-To Filter	Type of Reply-To filter condition to apply. Options: - - - None - - (default) - Equals - Contains - Does Not Equal - Does Not Contain - Is Blank - Is Not Blank - Regex
To Filter	Type of To filter condition to apply. Options: - - - None - - (default) - Equals - Contains - Does Not Equal - Does Not Contain - Is Blank - Is Not Blank - Regex
Cc Filter	Type of Cc filter condition to apply. Options: - - - None - - (default) - Equals - Contains - Does Not Equal - Does Not Contain - Is Blank - Is Not Blank - Regex

Subject Filter	Type of Subject filter condition to apply. Options: - - - None - - (default) - Equals - Starts With - Contains - Ends With - Does Not Equal - Does Not Start With - Does Not Contain - Does Not End With - Is Blank - Is Not Blank - Regex
Body Filter	Type of Body filter condition to apply. Options: - - - None - - (default) - Equals - Starts With - Contains - Ends With - Does Not Equal - Does Not Start With - Does Not Contain - Does Not End With - Is Blank - Is Not Blank - Regex
Case Sensitive	If enabled, text-based filters should be treated as case-sensitive.
Filter Logic	Logic to apply when combining filters.

Viewing an Email Monitor Task Instance

When an Email Monitor task is launched, the Controller creates a task instance record of that task.

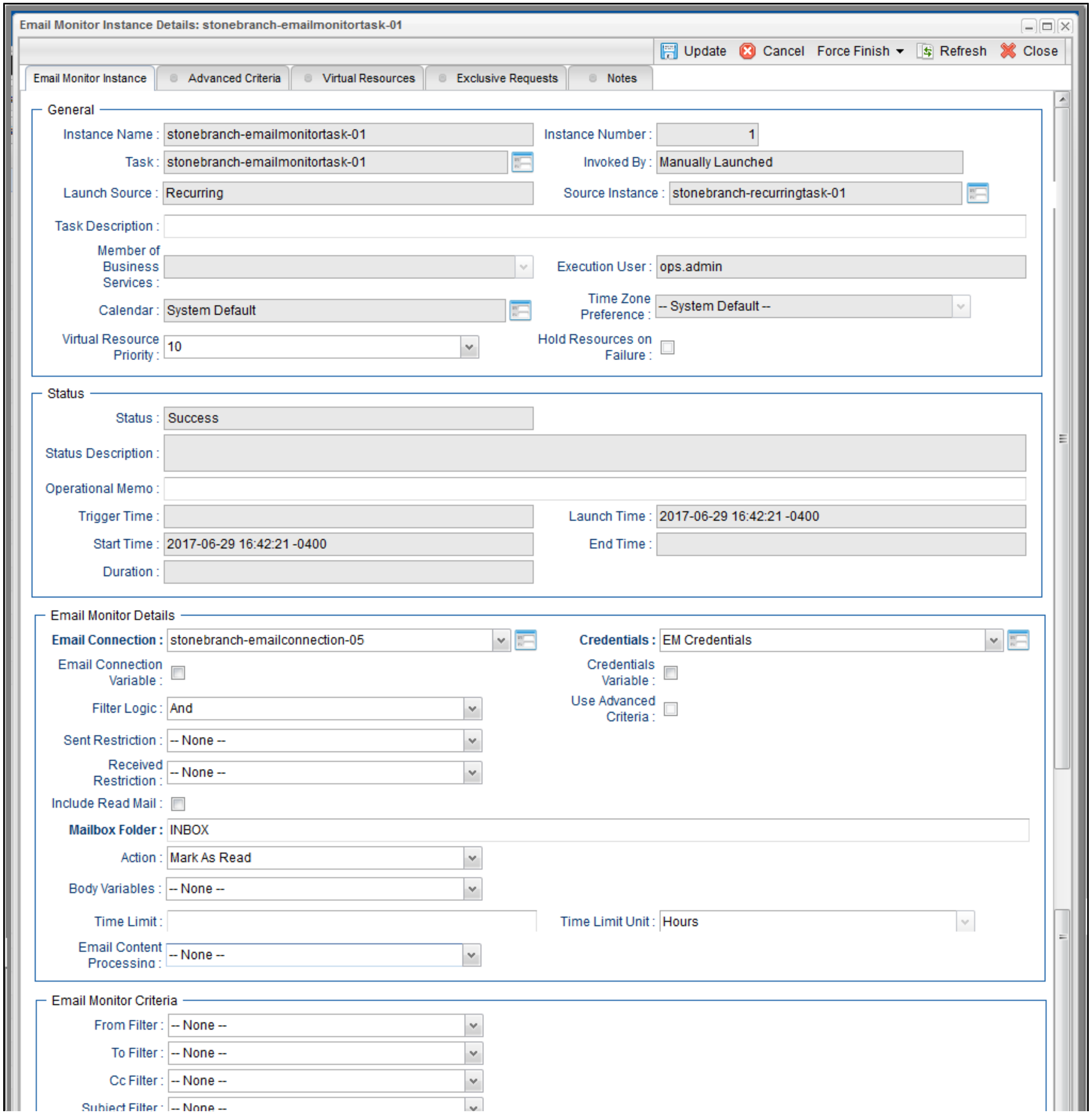
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Email Monitor Task Details for that task
- Activity Monitor
- Task Instances list

Email Monitor Task Instance Details

The following Email Monitor Task Instance Details contains information on the execution of the task shown in the Email Monitor Task Details.



Email Monitor Instance Details: stonebranch-emailmonitortask-01
Update
Cancel
Force Finish
Refresh
Close
Email Monitor Instance
Advanced Criteria
Virtual Resources
Exclusive Requests
Notes

General

Instance Name :	stonebranch-emailmonitortask-01	Instance Number :	1
Task :	stonebranch-emailmonitortask-01	Invoked By :	Manually Launched
Launch Source :	Recurring	Source Instance :	stonebranch-recurringtask-01
Task Description :			
Member of Business Services :		Execution User :	ops.admin
Calendar :	System Default	Time Zone Preference :	-- System Default --
Virtual Resource Priority :	10	Hold Resources on Failure :	☐

Status

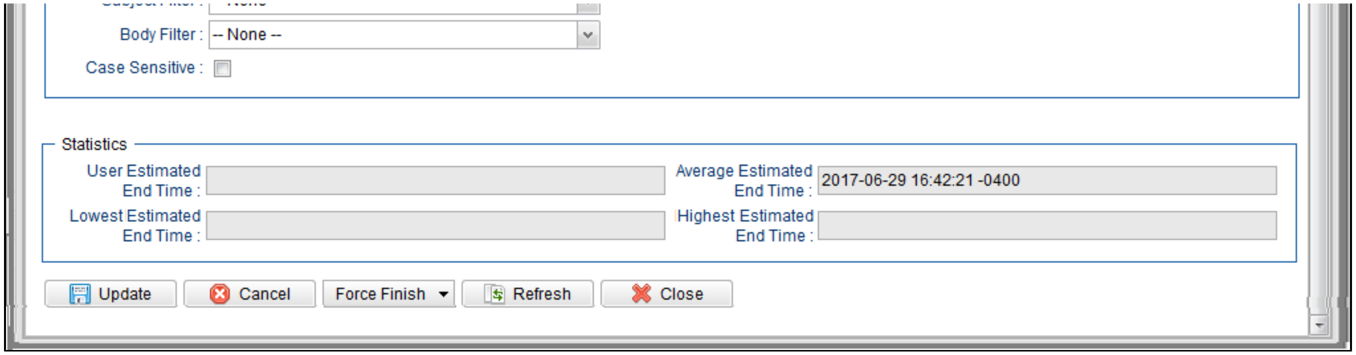
Status :	Success		
Status Description :			
Operational Memo :			
Trigger Time :		Launch Time :	2017-06-29 16:42:21 -0400
Start Time :	2017-06-29 16:42:21 -0400	End Time :	
Duration :			

Email Monitor Details

Email Connection :	stonebranch-emailconnection-05	**Credentials :**	EM Credentials
Email Connection Variable :	☐	Credentials Variable :	☐
Filter Logic :	And	Use Advanced Criteria :	☐
Sent Restriction :	-- None --		
Received Restriction :	-- None --		
Include Read Mail :	☐		
Mailbox Folder :	INBOX		
Action :	Mark As Read		
Body Variables :	-- None --		
Time Limit :		Time Limit Unit :	Hours
Email Content Processing :	-- None --		

Email Monitor Criteria

From Filter :	-- None --
To Filter :	-- None --
Cc Filter :	-- None --
Subject Filter :	-- None --



Body Filter : -- None --

Case Sensitive : ☐

Statistics

User Estimated End Time :

Average Estimated End Time : 2017-06-29 16:42:21 -0400

Lowest Estimated End Time :

Highest Estimated End Time :

Email Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Email Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Launch Source	System-supplied; Source from which this Recurring task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance.
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Timezone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.

Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Email Monitor Details	This section contains assorted detailed information about the task.
Email Connection	Required; Name of an incoming Email Connection (Type = Incoming). An Email Connection specifies information about an outgoing or incoming email server. Enter the name of an existing incoming Email Connection, select an existing incoming Email Connection from the drop-down list, or clear the Email Connection field and click the Details icon to create a new Email Connection (Incoming will be pre-selected in the Type field).
Email Connection Variable	Indication of whether the Email Connection field is a reference field for selecting a specific Email Connection (unchecked) or a text field for specifying the Email Connection as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note ⚠ When updating multiple Tasks, to change from using an Email Connection reference to using an Email Connection variable, you must change the **Email Connection Variable** field to **Yes** and specify the Email Connection variable in the **Email Connection Unresolved** field. Conversely, to change from using an Email Connection variable to using an Email Connection reference, you must change the **Email Connection Variable** field to **No** and specify the Email Connection reference in the **Email Connection** field.
Credentials	Credentials to be used to connect to the Email server.

Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Filter Logic	Logic to apply when combining filters. If Use Advanced Criteria is enabled, it is the logic to apply when combining Advanced Criteria records. Options: • And (default) • Or
Use Advanced Criteria	If enabled, use advanced criteria specified under the Advanced Criteria tab for the Email Monitor filter criteria.
Sent Restriction	Type of Sent restriction to apply. Options: • - - None - - (default) • On • Before • After • Span
Sent On	If Sent Restriction = On; Sent On restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow
Sent On Date	If Sent On = Date; Specific date for the Sent On restriction value.

Sent Before	If Sent Restriction = Before; Sent Before restriction value. Options: - Date (default) - Today - Yesterday - Tomorrow - Launch Time - Relative
Sent Before Date	If Sent Before = Date; Specific date for the Sent Before restriction value.
Sent Before Offset	If Sent Before = Relative; Offset, relative to the last launch time, for the Sent Before restriction value. Format: [+/-]hh:mm
Sent After	If Sent Restriction = After; Sent After restriction value. Options: - Date (default) - Today - Yesterday - Tomorrow - Launch Time - Relative
Sent After Date	If Sent After = Date; Specific date for the Sent After restriction value.
Sent After Offset	If Sent After = Relative; Offset, relative to the last launch time, for the Sent After restriction value.
Received Restriction	Type of Received restriction to apply. Options: - - - None - - (default) - On - Before - After - Span

Received On	If Received Restriction = On; Received On restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow
Received On Date	If Received On = Date; Specific date for the Received On restriction value.
Received Before	If Received Restriction = Before; Received Before restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow • Relative
Received Before Date	If Received Before = Date; Specific date for the Received Before restriction value.
Received Before Offset	If Received Before = Relative; Offset, relative to the last launch time, for the Received Before restriction value. Format: [+/-]hh:mm
Received After	If Received Restriction = After; Received After restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow • Relative
Received After Date	If Received After = Date; Specific date for the Received After restriction value.
Received After Offset	If Received After = Relative; Offset, relative to the last launch time, for the Received After restriction value.
Include Read Mail	If enabled, specifies that mail marked as read should be included by the filter.

Mailbox Folder	Mailbox folder to monitor on the server specified in the selected Email Connection.
Action	Action to take on mail that matches the filter. Options: • Mark As Read (default) • Delete • Delete/Mark As Read • Move • Move/Mark As Read
Move To Trash	If Action = Delete or Delete/Mark As Read; If enabled, mail matching the filter will be moved to the trash folder specified in the Email Connection.
Mailbox Folder Destination	If Action = Move or Move/Mark As Read; Mailbox folder to move matched mail into.
Body Variables	Specifies whether to parse the Email body for name/value pairs to create variables from. Options: • - - None - - No processing of the Email body will occur. • Within Body Entire body of the Email will be scanned for a "=" (equal sign) and any lines containing a "=" will be variablized as long as the text to the left of the "=" conforms to the naming standards for variables. • Within Default Markers Marker begin and end values are defined by the Email Body Default Begin Marker and Email Body Default End Marker Universal Controller system properties. • Within Custom Markers Marker begin and end values are defined in the Begin Marker and #End Marker fields. If markers are used, all lines of the Email body between the begin and end markers will be variablized in accordance to java properties. Any lines of the Email body outside the markers will be ignored w/r variablization.
Begin Marker	If Body Variables is Within Customer Markers; Begin marker for the Body Variables.
End Marker	If Body Variables is Within Customer Markers; End marker for the Body Variables.
Time Limit	Used for Email Monitor tasks not associated with a trigger; Amount of time (in units specified by Time Limit Unit) to monitor for the Email Monitor conditions to be met. The Time Limit duration is always relative to the start time of the Email Monitor task instance.

Time Limit Unit	Unit of time to use for Time Limit. Options: - Minutes - Hours (default) - Days
Email Content Processing	Method for determining the success or failure of this task based on Email content. Options: - - - None - - - Success Body Contains - Failure Body Contains - Success Body Does Not Contain - Failure Body Does Not Contain - Success Subject Contains - Failure Subject Contains - Success Subject Does Not Contain - Failure Subject Does Not Contain Default is - - None - -.
Content Value	Required if Email Content Processing is not - - None - -; Content Value to be matched in the email.
Case Sensitive Content	If Email Content Processing is not - - None - -; Indication of whether or not matching will be performed in a case sensitive manner.
Email Monitor Criteria	This section contains criteria for selecting emails to monitor.
From Filter	Type of From filter condition to apply. Options: - - - None - - (default) - Equals - Contains - Does Not Equal - Does Not Contain - Regex
From	If From Filter = any value other than - - None - -; From filter condition value.

To Filter	Type of To filter condition to apply. Options: - - - None - - (default) - Equals - Contains - Does Not Equal - Does Not Contain - Is Blank - Is Not Blank - Regex
To	If To Filter = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; To filter condition value.
Cc Filter	Type of Cc filter condition to apply. Options: - - - None - - (default) - Equals - Contains - Does Not Equal - Does Not Contain - Is Blank - Is Not Blank - Regex
Cc	If Cc Filter = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; Cc filter condition value.
Subject Filter	Type of Subject filter condition to apply. Options: - - - None - - (default) - Equals - Starts With - Contains - Ends With - Does Not Equal - Does Not Start With - Does Not Contain - Does Not End With - Is Blank - Is Not Blank - Regex

Subject	If Subject Filter = anything other than - - None - -, Is Blank, or Is Not Blank; Subject filter condition value.
Body Filter	Type of Body filter condition to apply. Options: - - - None - - (default) - Equals - Starts With - Contains - Ends With - Does Not Equal - Does Not Start With - Does Not Contain - Does Not End With - Is Blank - Is Not Blank - Regex
Body	If Body Filter = anything other than - - None - -, Is Blank, or Is Not Blank; Body filter condition value. Note ⚠ If an email being monitored does not contain the body in plain text, but only in HTML format, a plain text body will be generated from the HTML body content.
Case Sensitive	If enabled, text-based filters should be treated as case-sensitive.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: - – None – - Time - Relative Time - Duration - Seconds
Wait Time	If Wait To Start = Time or Relative Time; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  ◦ If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  ◦ If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type) . To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.

Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: - Time - Flag the task if it finishes after the specified time (see Late Finish Time). - Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. - Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: - Percentage - Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: - Seconds - Minutes - Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.

Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.

CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.

Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. Note ⚠ If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
Advanced Criteria	If the Use Advanced Criteria field is enabled; advanced search criteria to use for Email Monitor filter criteria.
Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (`ops_exclusive_order`) for this task instance.
Notes	Lists all notes associated with this record.

Running an Email Monitor Task

You can run an Email Monitor task:

- Manually, by clicking the Launch Task or Launch Task with Variables button in the Email Monitor Tasks list or Email Monitor Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

Creating Task Actions

Universal Controller lets you create the following actions for tasks and workflows:

Action Type	Description
Abort	Allows you to abort a waiting or running task instance
Email Notification	Allows you to generate email notifications based on various events and statuses.
Set Variable	Allows you to set a variable to a specific value for a task or workflow.
SNMP Notification	Allows you to generate SNMP notifications to be sent to an SNMP Manager.
System Operation	Allows you to run a Universal Controller system operation based on specified conditions.

Abort Actions

- Overview
- Creating an Abort Action
- Abort Action Details Field Descriptions

Overview

The Abort Action allows you to abort a task instance under the following circumstances:

- If a task instance is in a status less than Queued (40), the task instance is eligible for being skipped, and an Abort Action will skip that task instance.

- If a task instance is in a status greater than or equal to Queued (40) and less than Skipped (180), the task instance is not eligible for being skipped, and an Abort Action will Force Finish the task instance (with halt and cancel options configurable).

(For more details on the statuses and their numerical ordering, see Task Instance Status Types.)

Additionally, for running task instances, the Abort Action provides the ability to Force Finish and Cancel by using the Cancel Process if Active option and/or override the exit code of the Force Finished task instance by using the Override Exit Code option.

You can trigger this action based on one or more of the following events associated with the task instance:

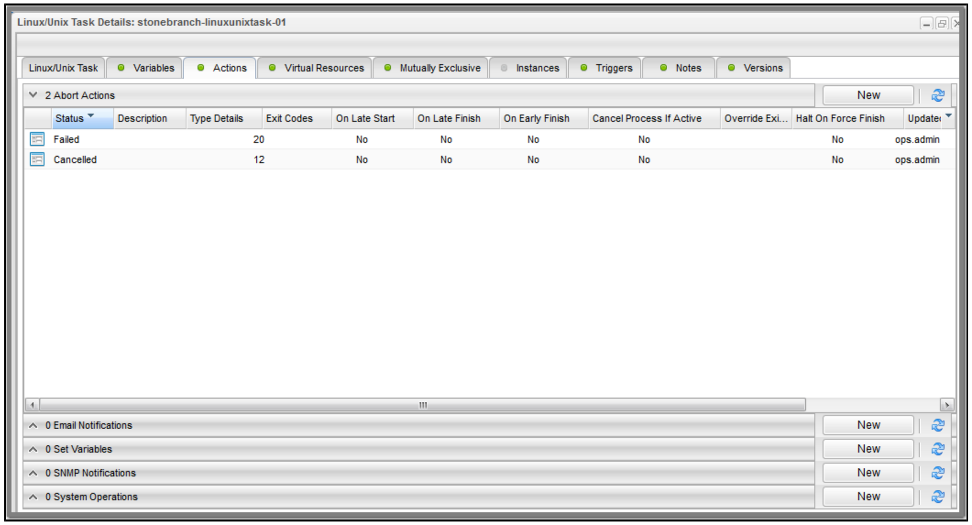
- Status or statuses of the task instance
- Exit code(s) generated by the program (along with at least one status)
- Late start
- Early or late finish

You can create one or more Abort Actions for any Universal Controller task. For Workflow tasks, you can also specify whether you want the Abort Action instructions to apply to the workflow itself, the workflow and/or its tasks, or to the tasks only.

Creating an Abort Action

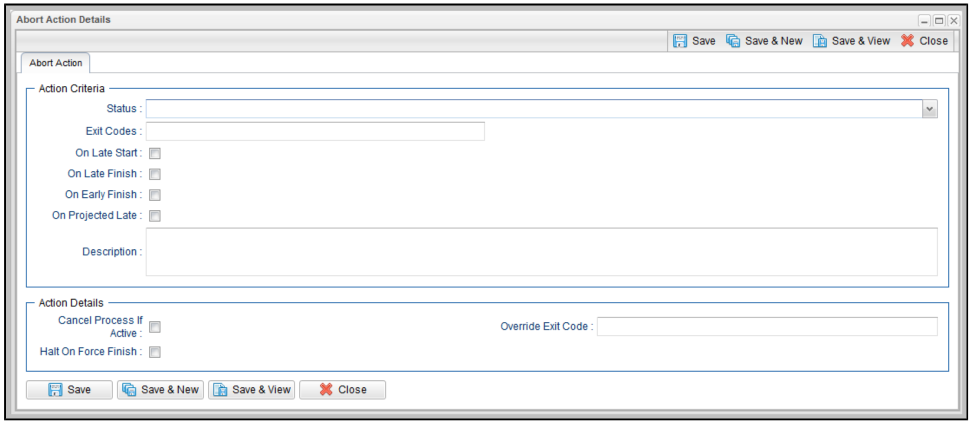
Step 1	Display the Task Details of the task for which you are creating the Abort Action.

Step 2 Click the **Actions** tab. A list of any defined Actions for that task displays.


Linux/Unix Task Details: stonebranch-linuxunixtask-01
Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
2 Abort Actions
New
0 Email Notifications
0 Set Variables
0 SNMP Notifications
0 System Operations

Status	Description	Type Details	Exit Codes	On Late Start	On Late Finish	On Early Finish	Cancel Process If Active	Override Exi...	Halt On Force Finish	Update
Failed			20	No	No	No	No		No	ops.admin
Cancelled			12	No	No	No	No		No	ops.admin

Step 3 Click the **New** button that displays on the Abort Actions row. The Abort Action Details pop-up displays.


Abort Action Details
Save
Save & New
Save & View
Close
Abort Action
Action Criteria
Status :
Exit Codes :
On Late Start : ☐
On Late Finish : ☐
On Early Finish : ☐
On Projected Late : ☐
Description :
Action Details
Cancel Process If Active : ☐
Override Exit Code :
Halt On Force Finish : ☐
Save
Save & New
Save & View
Close

Step 4 Using the field descriptions, below, as a guide, complete the fields as needed.

Step 5 Click a **Save** button to save the record in the Controller database.

Step 6 If appropriate, repeat these steps for any additional Abort Actions you want to create.

Abort Action Details Field Descriptions

The following table describes the fields and buttons that display in the Abort Actions Details.

Field Name	Description
Action Criteria	This section contains criteria for performing the action.
Action Inheritance	For Workflow tasks only; the records that this action applies to. Options: • Self The action applies only to the workflow; it is not inherited by its children tasks. For example, if the action is defined for the Defined status, when the workflow where the action is specified transitions into the Defined status, the action will run for the workflow. When children tasks within this workflow transition into the Defined status, the action will not run. • Self/Children The action applies to the workflow and any children under the workflow (it is as if each child under the workflow had the action specified on itself). For example, if the workflow or any of its children transition into the Defined status, the action will run. • Children This action applies only to the children under the workflow and not the workflow itself. For example, if any child of this workflow transitions into the Defined status, the action will run. However, when the workflow where this action is specified transitions into the Defined status, this action will not run.
Status	The status of this task, by itself or together with an exit code, that will trigger the Abort action. You can specify as many statuses as needed.
Exit Codes	Specifies one or more exit codes that will trigger the event. If you specify an exit code, you must also specify at least one status. Use commas to separate multiple exit codes; use a hyphen to specify a range. Example: 1, 5, 22-30.
On Late Start	Generates the action or notification if the task started late, based on the Late Start Time specified in the task.
On Late Finish	Generates the action or notification if the task finishes late, based on the Late Finish time specified in the task.
On Early Finish	Generates the action or notification if the task finishes early, based on the Early Finish Time specified in the task.
On Projected Late	Execute the Action when the task instance is projected to be late based on critical path projected end times. Only applicable when a Late Start Time, Late Start Duration, or Late Finish Time is specified for the task instance. Note This field displays in the Details only if the Controller is configured for critical path calculations with an enabled Critical Path Calculations Permitted Universal Controller system property.
Description	Description of this action.
Action Details	This section contains additional details about the action.

Cancel Process if Active	If enabled, instructs the Controller to Cancel the process that was launched by this task before Force Finishing the task.
Halt On Force Finish	If enabled, instructs the Controller to Force Finish (Halt) a running task instance, rather than just Force Finish.
Override Exit Code	Overrides the exit code returned by the process with the exit code specified in this field. This enables you to you Force Finish a task instance with a specific exit code so that you can force the workflow to take a conditional path using Conditions. Note If you run the Abort Action against a task that has not yet started, the task will be skipped, and the **Override Exit Code** is not applicable.
Buttons	This section identifies the buttons displayed above and below the Action Details that let you perform various actions.
Save	Saves a new Action record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	Closes the Details pop-up of this action.

Email Notification Actions

- Overview
    - Notifications Based on Events
    - Notifications Based on Status
- Creating an Email Notification
- Email Notification Details Field Descriptions
    - Report Variable Resolution

Overview

You can create one or more Email Notifications for any Universal Controller task. For workflow tasks, you can also specify whether you want the email to be triggered by the workflow itself, the workflow and/or its tasks, or by the tasks only.

In order to generate Email Notifications, there must be an Email connection defined, which provides the Email server name and other pertinent information.

Notifications Based on Events

You can generate notifications based on one or more of the following events associated with the task instance of the task for which you create the notification:

- Status or statuses of the task instance
- Exit code(s) generated by the program (along with at least one status)
- Late start
- Early or late finish

Notifications Based on Status

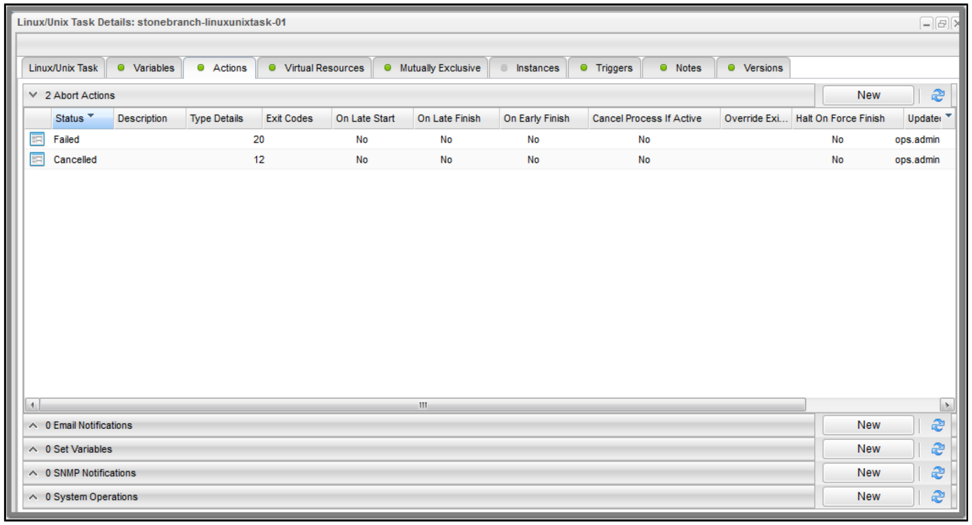
You also can generate notifications based on the status of:

- Agents and Agent clusters
- Cluster nodes
- OMS Servers

Creating an Email Notification

Step 1	Display the Task Details of the task for which you are creating the Email Notification.

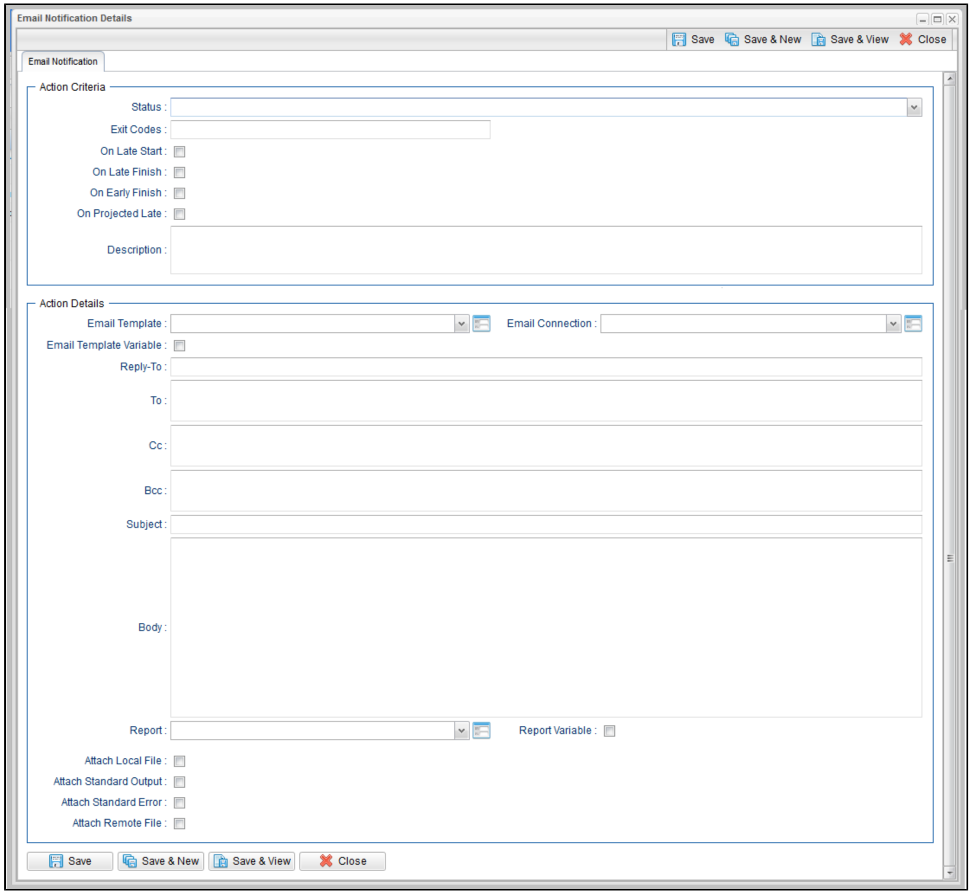
Step 2 Click the **Actions** tab. A list of any defined Actions for that task displays.


Linux/Unix Task Details: stonebranch-linuxunixtask-01
Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
2 Abort Actions
New

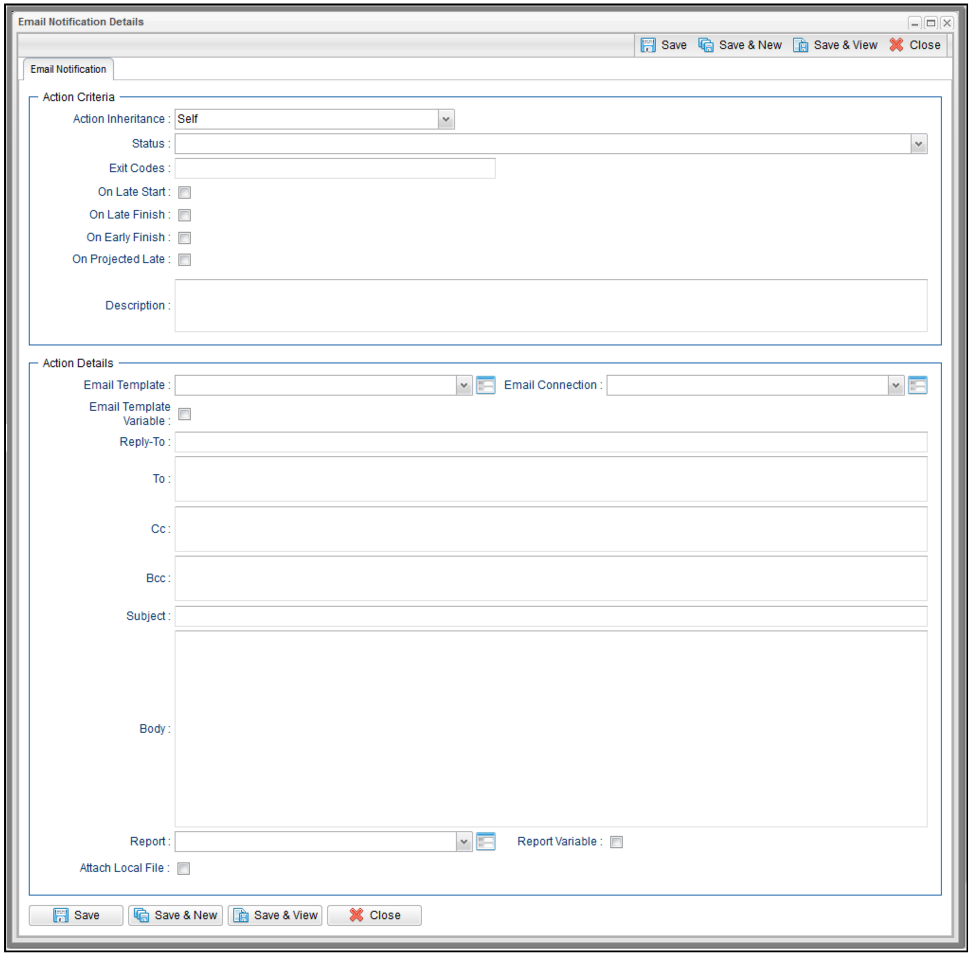
Status	Description	Type Details	Exit Codes	On Late Start	On Late Finish	On Early Finish	Cancel Process If Active	Override Exi...	Halt On Force Finish	Update
Failed			20	No	No	No	No		No	ops.admin
Cancelled			12	No	No	No	No		No	ops.admin

0 Email Notifications
New
0 Set Variables
New
0 SNMP Notifications
New
0 System Operations
New

Step 3 Click the **New** button that displays on the Email Notifications row. The Email Notification Details pop-up displays.


Email Notification Details
Save
Save & New
Save & View
Close
Email Notification
Action Criteria
Status :
Exit Codes :
On Late Start : ☐
On Late Finish : ☐
On Early Finish : ☐
On Projected Late : ☐
Description :
Action Details
Email Template :
Email Connection :
Email Template Variable : ☐
Reply-To :
To :
Cc :
Bcc :
Subject :
Body :
Report :
Report Variable : ☐
Attach Local File : ☐
Attach Standard Output : ☐
Attach Standard Error : ☐
Attach Remote File : ☐
Save
Save & New
Save & View
Close

For **Workflow tasks**, the Email Notification Details includes the Action Inheritance field:

	 Email Notification Details Save Save & New Save & View Close Email Notification Action Criteria Status : Exit Codes : On Late Start : On Late Finish : On Early Finish : On Projected Late : Description : Action Details Email Template : Email Connection : Email Template Variable : Reply-To : To : Cc : Bcc : Subject : Body : Report : Report Variable : Attach Local File : Action Inheritance : Self
Step 4	Using the field descriptions, below, as a guide, complete the fields as needed.
Step 5	Click a **Save** button to save the record in the Controller database.
Step 6	If appropriate, repeat these steps for any additional Email Notifications you want to create.

Email Notification Details Field Descriptions

The table below describes the fields and buttons that display in the Email Notification Details.

Field Name	Description

Action Inheritance	For Workflow tasks only; the records that this action applies to. Options: • Self The action applies only to the workflow; it is not inherited by its children tasks. For example, if the action is defined for the Defined status, when the workflow where the action is specified transitions into the Defined status, the action will run for the workflow. When children tasks within this workflow transition into the Defined status, the action will not run. • Self/Children The action applies to the workflow and any children under the workflow (it is as if each child under the workflow had the action specified on itself). For example, if the workflow or any of its children transition into the Defined status, the action will run. • Children This action applies only to the children under the workflow and not the workflow itself. For example, if any child of this workflow transitions into the Defined status, the action will run. However, when the workflow where this action is specified transitions into the Defined status, this action will not run.
Status	The status of this task, by itself or together with an exit code, that will trigger this Email Notification action. You can specify as many statuses as needed.
Exit Codes	Specifies one or more exit codes that will trigger the event. If you specify an exit code, you must also specify at least one status. Use commas to separate multiple exit codes; use a hyphen to specify a range. Example: 1, 5, 22-30.
On Late Start	Generates the action or notification if the task started late, based on the Late Start Time specified in the task.
On Late Finish	Generates the action or notification if the task finishes late, based on the Late Finish time specified in the task.
On Early Finish	Generates the action or notification if the task finishes early, based on the Early Finish Time specified in the task.
On Projected Late	Execute the Action when the task instance is projected to be late based on critical path projected end times. Only applicable when a Late Start Time, Late Start Duration, or Late Finish Time is specified for the task instance. Note This field displays in the Details only if the Controller is configured for critical path calculations with an enabled Critical Path Calculations Permitted Universal Controller system property.
Description	Description of this action.
Action Criteria	This section contains criteria for performing the action.
Action Details	This section contains additional details about the action.

Email Template	Name of an Email template defined in an Email Template Details. An Email template allows you to specify standard recipients and text for outgoing emails. Enter the name of an existing Email template, select an Email template from the drop-down list, or click the Details icon to create a new Email template. Every Email template specifies an Email connection. If you do not specify an Email template in this field, you must specify an Email connection in the Email Connection field. If you specify both an Email template (in this field) and an Email Connection, the Email server specified in the Email Connection field overrides the Email server specified in this field. Note Any information specified in an Email task (or Email Notification) overrides what is specified in an Email template.
Email Template Variable	Indication of whether the Email Template field is a reference field for selecting a specific Email Template (unchecked) or a text field for specifying the Email Template as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Email Template reference to using a Email Template variable, you must change the **Email Template Variable** field to **Yes** and specify the Email Template variable in the **Email Template Unresolved** field. Conversely, to change from using an Email Template variable to using an Email Template reference, you must change the **Email Template Variable** field to **No** and specify the Email Template reference in the **Email Template** field.
Email Connection	Required if an Email Template is not specified in the Email Template field; Name of an outgoing Email Connection (Type = Outgoing). An Email Connection specifies information about an outgoing or incoming email server. Enter the name of an existing outgoing Email Connection, select an existing outgoing Email Connection from the drop-down list, or clear the Email Connection field and click the Details icon to create a new Email Connection (Outgoing will be pre-selected in the Type field). If you specify both an Email Template and an Email Connection (in this field), the Email Connection specified in this field overrides the Email Connection specified in the Email Template field.
Reply-To	Email address of the sender. Use commas to separate multiple recipients. Variables and functions supported.
To	Email address of the recipient. Use commas to separate multiple recipients. Variables and functions supported.
CC	Email address of the party being sent a copy of the email, if any. Use commas to separate multiple recipients. Variables and functions supported.
BCC	Email address of the party being sent a blind (hidden) copy of the email, if any. Use commas to separate multiple recipients. Variables and functions supported.
Subject	Subject line of the email. Variables and functions supported.

Body	Text of the email message. Variables and functions supported. Note If both the Email Template and the Email Task (or Email Notification) contain text in the Body, the text in the Email Template is appended to the text in the Email Task (or Email Notification).
Report	Report to attach to this notification.
Report Variable	Indication of whether the Report field is a reference field for selecting a specific Report (unchecked) or a text field for specifying the Report as a variable (checked). Use the format: ${variable name} . The variable must be a supported type as described in Variables and Functions.
Attach Local File	If the uc.email.attachments.local.path Universal Controller Start-Up Property specifies a local directory; specification for whether or not to attach a local file to the notification.
Local Attachments Path	If Attach Local File is selected; Read-Only field showing the location of Local Attachments for the connected Node.
Local Attachment	If Attach Local File is selected; Name of the file(s) to attach. Supports variables as well as comma-separated list of file names.
Attach Standard Output	For Agent-based tasks only (except z/OS tasks); attach any standard output generated by the associated task.
Attach Standard Error	For Agent-based tasks only (except z/OS tasks); attach standard error data generated by the associated task.
Attach Remote File	For Agent-based tasks only; attach any single text file that is accessible by the Agent. Full path name is required. Wildcards are NOT supported. The Controller will request the file from the agent. If the file does not exist, the Agent will return a file output type with the content: OPSWISE WARNING - File is not available.
Attach Job Log	For z/OS tasks only; attach any job logs generated by the associated task.
Start Line	If Attach Standard Output, Attach Standard Error, and/or Attach Remote File is selected; Attach data beginning at the line indicated. • If a **Start Line** value is not specified, the default is 1. • If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Attach Standard Output, Attach Standard Error, and/or Attach Remote File is selected; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.

Scan Text	If Attach Standard Output, Attach Standard Error, and/or Attach Remote File is selected; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
File Name	If Attach Remote File is selected; path and file name of the file you want to attach to the email notification.
Buttons	This section identifies the buttons displayed above and below the Action Details that let you perform various actions.
Save	Saves a new Action record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	Closes the Details pop-up of this action.

Report Variable Resolution

Reports do not have to be unique by Title. However, Reports with the same Title must be unique per visibility: per User, per Group, and per Everyone.

Accordingly, the following applies regarding Report Variable field resolution.

Once resolved, the Report Variable field value could match multiple Reports with the same Title, but with different visibilities. Therefore, there is an order of precedence to choosing the report by Title:

1. User visibility (execution user).
2. Group visibility (execution user's groups).
3. Everyone visibility.
4. Any other report(s). (This is applicable only in the case of an administrator who can view all reports.)

If the execution user belongs to more than one Group, and there is more than one report matching the Title visible to those Groups, the first report found will be chosen.

If multiple reports are found by resolved report Title, the following will be logged:

```
Found more than one report with name <report-title> visible to execution user <execution-user>.
```

If the resolved report Title does not match any report visible to the execution user, the notification will be delivered containing the following error message:

```
Could not find report with name <report-title> visible to execution user <execution-user>.
```

If the report variable cannot be resolved, the notification will be delivered containing the following error message:

```
Report variable not resolved.
```

A Report Variable that resolves to blank implies that no report should be included. This is not considered an error; the notification will proceed as normal.

Set Variable Actions

For information on how to create Set Variable actions for use within a task or workflow, see Creating a Set Variable Action within a Task or Workflow in Variables and Functions.

SNMP Notification Actions

- Overview
- Creating an SNMP Notification
- SNMP Notification Details Field Descriptions

Overview

You can create one or more SNMP notifications for any Universal Controller task. For workflow tasks, you can also specify whether you want the SNMP notification to be triggered by the workflow itself, the workflow and/or its tasks, or by the tasks only.

You can trigger the notification based on one or more of the following events associated with the task instance to which you attach the notification:

- Status or statuses of the task instance
- Exit code(s) generated by the program (along with at least one status)
- Late start
- Early or late finish

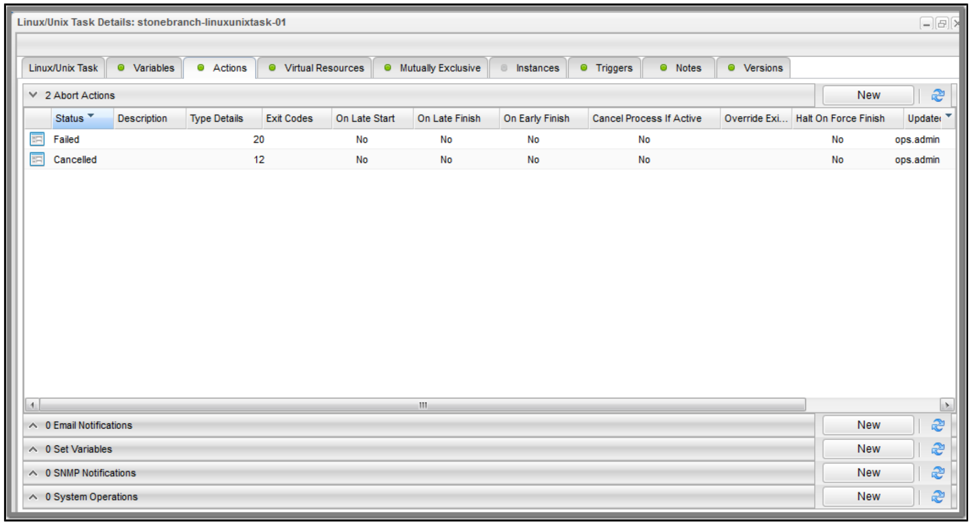
In order to generate SNMP notifications, there must be an SNMP Manager defined, which provides the server name and other pertinent information of the SNMP Manager that will receive the notification.

You also can generate notifications based on the status of Agents and Agent clusters, Cluster nodes, and OMS Servers.

Creating an SNMP Notification

Step 1	Display the Task Details of the task for which you are creating the SNMP Notification.

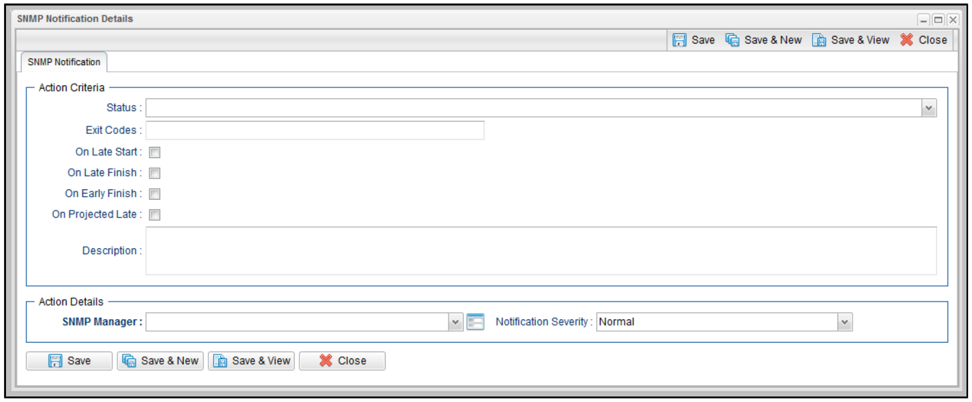
Step 2 Click the **Actions** tab. A list of any defined Actions for that task displays.


Linux/Unix Task Details: stonebranch-linuxunixtask-01
Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
New
0 Email Notifications
0 Set Variables
0 SNMP Notifications
0 System Operations

2 Abort Actions

Status	Description	Type Details	Exit Codes	On Late Start	On Late Finish	On Early Finish	Cancel Process If Active	Override Exi...	Halt On Force Finish	Updater
Failed			20	No	No	No	No		No	ops.admin
Cancelled			12	No	No	No	No		No	ops.admin

Step 3 Click the **New** button that displays on the SNMP Notifications row. The SNMP Notification Details pop-up displays.


SNMP Notification Details
Save
Save & New
Save & View
Close
SNMP Notification

Action Criteria

Status :

Exit Codes :

On Late Start : ☐

On Late Finish : ☐

On Early Finish : ☐

On Projected Late : ☐

Description :

Action Details

SNMP Manager :

Notification Severity : Normal

Step 4 Using the field descriptions, below, as a guide, complete the fields as needed.

Step 5 Click a **Save** button to save the record in the Controller database.

Step 6 If appropriate, repeat these steps for any additional Email Notifications you want to create.

SNMP Notification Details Field Descriptions

The table below describes the fields and buttons that display in the SNMP Notification Details.

Field Name	**Description**
Action Criteria	This section contains criteria for performing the action.
Action Inheritance	For Workflow tasks only; the records that this action applies to. Options: - Self The action applies only to the workflow; it is not inherited by its children tasks. For example, if the action is defined for the Defined status, when the workflow where the action is specified transitions into the Defined status, the action will run for the workflow. When children tasks within this workflow transition into the Defined status, the action will not run. - Self/Children The action applies to the workflow and any children under the workflow (it is as if each child under the workflow had the action specified on itself). For example, if the workflow or any of its children transition into the Defined status, the action will run. - Children This action applies only to the children under the workflow and not the workflow itself. For example, if any child of this workflow transitions into the Defined status, the action will run. However, when the workflow where this action is specified transitions into the Defined status, this action will not run.
Status	The status of this task, by itself or together with an exit code, that will trigger this SNMP Notification action. You can specify as many statuses as needed.
Exit Codes	Specifies one or more exit codes that will trigger the event. If you specify an exit code, you must also specify at least one status. Use commas to separate multiple exit codes; use a hyphen to specify a range. Example: 1, 5, 22-30.
On Late Start	Generates the action or notification if the task started late, based on the Late Start Time specified in the task.
On Late Finish	Generates the action or notification if the task finishes late, based on the Late Finish time specified in the task.
On Early Finish	Generates the action or notification if the task finishes early, based on the Early Finish Time specified in the task.
On Projected Late	Execute the Action when the task instance is projected to be late based on critical path projected end times. Only applicable when a Late Start Time, Late Start Duration, or Late Finish Time is specified for the task instance. Note This field displays in the Details only if the Controller is configured for critical path calculations with an enabled Critical Path Calculations Permitted Universal Controller system property.
Description	Description of this action.
Action Details	This section contains additional details about the action.

SNMP Manager	The SNMP Manager that will receive the SNMP notification. Enter the name of an existing SNMP Manager, select an existing SNMP Manager from the drop-down list, or clear the SNMP Manager field and click the Details icon to create a new SNMP Manager.
Notification Severity	Severity of this notification. Options: - Normal (1) - Warning (2) - Minor (3) - Major (4) - Critical (5)
Buttons	This section identifies the buttons displayed above and below the Action Details that let you perform various actions.
Save	Saves a new Action record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	Closes the Details pop-up of this action.

System Operation Actions

- Overview
- Creating a System Operation
- System Operation Details Field Descriptions

Overview

A System Operation allows you to run a Universal Controller system operation based on specified conditions.

You can trigger the operation based on one or more of the following events associated with the task instance:

- Status or statuses of the task instance
- Exit code(s) generated by the program (along with at least one status)
- Late start
- Early or late finish

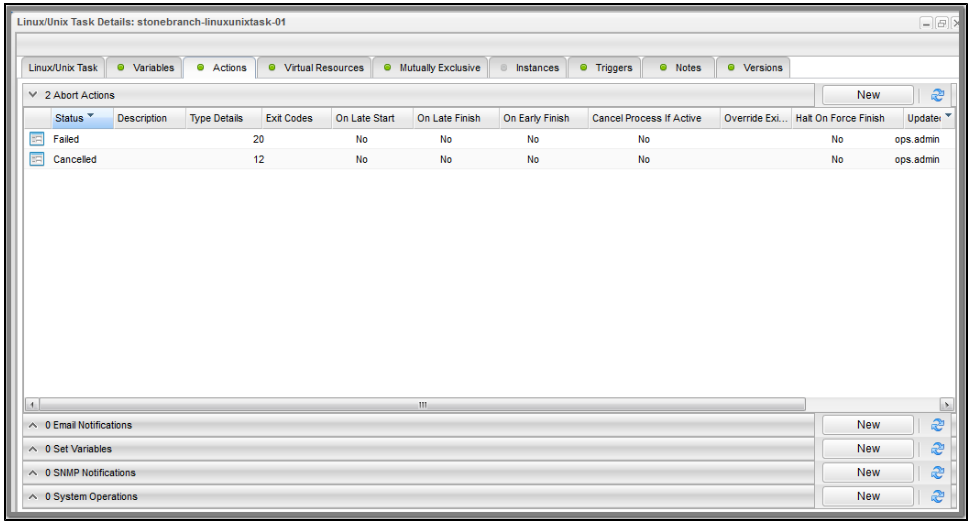
You can create one or more System Operations for any Controller task. For Workflow tasks, you can also specify whether you want a System Operation action to apply to the workflow itself, the workflow and/or its tasks, or to the tasks only.

System Operations will run under the security context of the of the task instance Execution User, which must have the appropriate privileges for the specified Operation Type; otherwise, the System Operation will be prohibited.

Creating a System Operation

Step 1	Display the Task Details of the task for which you are creating the System Operation.

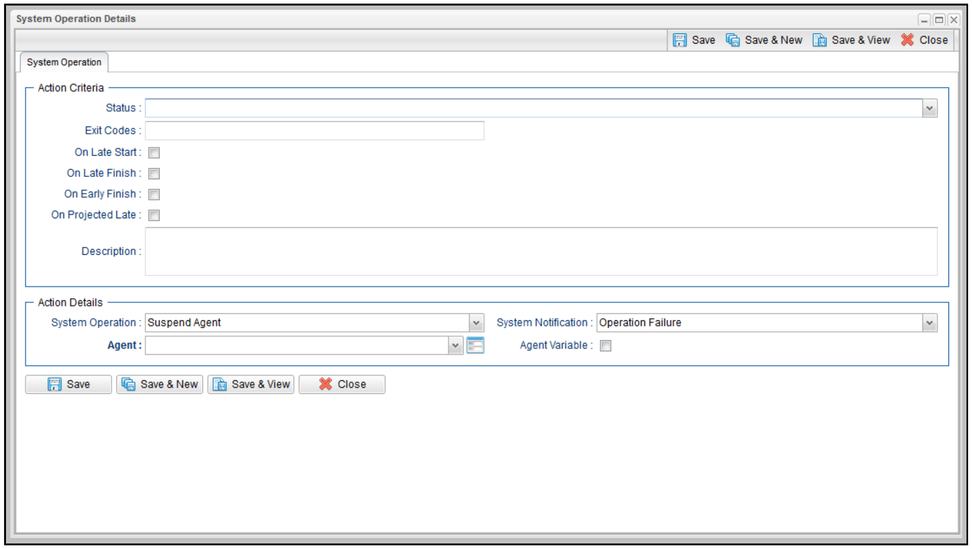
Step 2 Click the **Actions** tab. A list of any defined Actions for that task displays. For example, the following Actions list shows that two Abort Actions have been created for this task.


Linux/Unix Task Details: stonebranch-linuxunixtask-01
Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
New
0 Email Notifications
New
0 Set Variables
New
0 SNMP Notifications
New
0 System Operations
New

2 Abort Actions

Status	Description	Type Details	Exit Codes	On Late Start	On Late Finish	On Early Finish	Cancel Process If Active	Override Exi...	Halt On Force Finish	Update
Failed			20	No	No	No	No		No	ops.admin
Cancelled			12	No	No	No	No		No	ops.admin

Step 3 Click the **New** button that displays on the System Operations row. The System Operation Details pop-up displays.


System Operation Details
Save
Save & New
Save & View
Close
System Operation
Save
Save & New
Save & View
Close

Action Criteria

Status :

Exit Codes :

On Late Start : ☐

On Late Finish : ☐

On Early Finish : ☐

On Projected Late : ☐

Description :

Action Details

System Operation : Suspend Agent

System Notification : Operation Failure

Agent :

Agent Variable : ☐

Step 4 Using the field descriptions, below, as a guide, complete the fields as needed.

Step 5 Click a **Save** button to save the record in the Controller database.

Step 6 If appropriate, repeat these steps for any additional System Operations you want to create.

System Operation Details Field Descriptions

The table below describes the fields and buttons that display in the System Operation Details.

Field Name	Description
Action Criteria	This section contains criteria for performing the action.
Action Inheritance	For Workflow tasks only; the records that this action applies to. Options: • Self The action applies only to the workflow; it is not inherited by its children tasks. For example, if the action is defined for the Defined status, when the workflow where the action is specified transitions into the Defined status, the action will run for the workflow. When children tasks within this workflow transition into the Defined status, the action will not run. • Self/Children The action applies to the workflow and any children under the workflow (it is as if each child under the workflow had the action specified on itself). For example, if the workflow or any of its children transition into the Defined status, the action will run. • Children This action applies only to the children under the workflow and not the workflow itself. For example, if any child of this workflow transitions into the Defined status, the action will run. However, when the workflow where this action is specified transitions into the Defined status, this action will not run.
Status	The status of this task, by itself or together with an exit code, that will trigger this System Operation action. You can specify as many statuses as needed.
Exit Codes	Specifies one or more exit codes that will trigger the event. If you specify an exit code, you must also specify at least one status. Use commas to separate multiple exit codes; use a hyphen to specify a range. Example: 1, 5, 22-30.
On Late Start	Generates the action or notification if the task started late, based on the Late Start Time specified in the task.
On Late Finish	Generates the action or notification if the task finishes late, based on the Late Finish time specified in the task.
On Early Finish	Generates the action or notification if the task finishes early, based on the Early Finish Time specified in the task.
On Projected Late	Execute the Action when the task instance is projected to be late based on critical path projected end times. Only applicable when a Late Start Time, Late Start Duration, or Late Finish Time is specified for the task instance. Note ⚠ This field displays in the Details only if the Controller is configured for critical path calculations with an enabled Critical Path Calculations Permitted Universal Controller system property.
Description	Description of this action.

Action Details	This section contains additional details about the action.
System Operation	Specific system operation to perform. Options: • Suspend Agent • Resume Agent • Suspend Agent Cluster • Resume Agent Cluster • Suspend Cluster Membership • Resume Cluster Membership • Set Agent Task Execution Limit • Set Cluster Task Execution Limit • Set Virtual Resource Limit • Run Task Instance Command • Launch Task • Trigger Now • Enable Trigger • Disable Trigger Note ⚠ For the Suspend Agent and Resume Agent operations, the user must have the following Agent permissions: • Explicit Read permission, if the Strict Business Service Membership Read Constraints Universal Controller system property is true. • Suspend Agent and Resume Agent commands permission. For the Suspend Agent Cluster, Resume Agent Cluster, Suspend Agent Cluster Membership, and Resume Agent Cluster Membership operations, the user must have the following Agent Cluster permissions: • Explicit Read permission, if the Strict Business Service Membership Read Constraints Universal Controller system property is true. • Suspend Agent, Resume Agent, Suspend Agent Membership, and Resume Agent Membership commands permission.
System Notification	Status of the specified system operation (see above) that will trigger a system notification. Options: • None • Operation Failure (default) • Operation Success/Failure • Operation Success Note ⚠ The Controller must be configured for system notifications in order for system notifications to be triggered.
Agent	If System Operation is Suspend Agent, Resume Agent, Suspend Cluster Membership, Resume Cluster Membership, or Set Agent Task Execution Limit; Agent for which the system operation is to be performed.
Agent Variable	If System Operation is Suspend Agent, Resume Agent, Suspend Cluster Membership, Resume Cluster Membership, or Set Agent Task Execution Limit: If enabled, the Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.

Agent Cluster	If System Operation is Suspend Agent Cluster, Resume Agent Cluster, Suspend Cluster Membership, Resume Cluster Membership, or Set Cluster Task Execution Limit; Agent Cluster for which the system operation is to be performed.
Agent Cluster Variable	If System Operation is Suspend Agent Cluster, Resume Agent Cluster, Suspend Cluster Membership, Resume Cluster Membership, or Set Cluster Task Execution Limit; If enabled, the Agent Cluster field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Task Execution Limit	If System Operation is Set Agent Task Execution Limit or Set Cluster Task Execution Limit; Specification for whether a Limited or Unlimited number of task instances can be run concurrently on the specified Agent / Agent Cluster. (Default is Unlimited.)
Virtual Resource	If System Operation is Set Virtual Resource Limit; Virtual resource for which a virtual resource limit is to be set. Note If the Strict Business Service Membership Read Constraints Universal Controller system property is true, the drop-down list displays only Virtual Resources for which the user has explicit Read permission.
Virtual Resource Variable	If System Operation is Set Virtual Resource Limit; the Virtual Resource field (if enabled) converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Limit	If System Operation is Set Agent Task Execution Limit or Set Cluster Task Execution Limit, and Task Execution Limit is Limited; Number of tasks that can be run concurrently by the specified Agent / Agent Cluster. If System Operation is Set Virtual Resource Limit; Virtual resource limit to be set for the specified virtual resource.
Command	If System Operation is Run Task Instance Command; Type of task instance command to run. Options: - Cancel - Force Finish - Force Finish (Halt) - Force Finish/Cancel - Force Finish/Cancel (Halt) - Skip - Skip Path - Unskip - Hold - Release - Release Recursive - Clear All Dependencies - Clear Exclusive - Clear Predecessors - Clear Resources - Clear Timewait - Re-run Caution If you choose to re-run a task instance, care must be taken to not create unintended loop situations. For example, if a task contains a System Operation that specifies the re-run of that same task if the task instance ends in the Failed status, this will cause an endless loop of re-runs. If the task also contains a System Notification / Email Notification that sends an email if the task instance ends in Failed status, the emails could flood the recipient's mail server.

Workflow Instance Name Condition	If System Operation is Run Task Instance Command; Optional. Type of condition for the name of the parent workflow task instance that contains the task on which to perform the specified action. The action will be performed only on a task instance in a parent workflow task instance meeting the specified condition value. Options: • Equals • Starts With • Contains • Ends With For the selected condition (the default is Equals), a corresponding field displays (see below) that allows you to enter a value for that condition.
Workflow Instance Name Equals	If Workflow Instance Name Condition = Equals; Exact name of a parent workflow task instance containing the task. Variables are supported.
Workflow Instance Name Starts With	If Workflow Instance Name Condition = Starts With; Character string at the start of the name of a parent workflow task instance containing the task. Variables are supported.
Workflow Instance Name Contains	If Workflow Instance Name Condition = Contains; Character string in the name of a parent workflow task instance containing the task. Variables are supported.
Workflow Instance Name Ends With	If Workflow Instance Name Condition = Ends With; Character string at the end of the name of a parent workflow task instance containing the task. Variables are supported.
Instance Lookup Option	If System Operation is Run Task Instance Command; Specification for how to search for the task instance to run a command against. Options: • Instance Name • Instance Name/Task • Instance Id • Task
Instance Name	If Instance Lookup Option is Instance Name or Instance Name/Task; Required. Name of the task instance to run the command against. Variables supported.
Instance Criteria	If Instance Lookup Option is Instance Name, Instance Name/Task, or Task; Additional criteria for selecting a specific task instance if multiple task instances have matching names. • Oldest Active Instance (default) • Newest Active Instance • Newest Instance (Re-run and Unskip commands only) • Oldest Instance (Re-run and Unskip commands only) (An Active task instance is an instance that is not in any of these statuses: Skipped, Finished, Success.)

Task Reference	- If Instance Lookup Option is Instance Name/Task or Task; Required. Name of the task for which the task instance was run. - If System Operation is Launch Task; Name of the task to launch.
Task Reference Variable	If Instance Lookup Option is Instance Name/Task or Task, or if System Operation is Launch Task; the Task field (above) converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Instance Id	If Instance Lookup Option is Instance Id; ID of task instance to run the command against. The instance Id (sysid) is a 32-character universally unique identifier. You can use the **${ops_task_id}** variable or **${_siblingid('mytask')}** function to get the instance Id.
Trigger Reference	If System Operation is Trigger Now, Enable Trigger, or Disable Trigger; Name of the trigger.
Trigger Reference Variable	If System Operation is Trigger Now, Enable Trigger, or Disable Trigger; Indication of whether the **Trigger Reference** field is a reference field for selecting a specific Trigger (unchecked) or is a text field for specifying the trigger as a variable (checked). For a variable, use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions.
Override Variables	If System Operation is Launch Task or Trigger Now; Variables to override.
Override Variables Resolution Disabled	If System Operation is Launch Task or Trigger Now; Indication of whether or not Override Variables resolution should be disabled to allow for passing unresolved variable values. - If enabled (checked), Override Variables will be left unresolved. Any unresolved variables will be resolved in the context of the launched or triggered task instance. - If disabled (unchecked), Override Variables will be resolved prior to the execution of the Launch Task or Trigger Now System Operation.
Override Trigger Date/Time	If System Operation is Trigger Now, Indication of whether or not to override the date/time of the trigger.
Override Date Offset	If Override Trigger Date Time is selected; Override date offset.
Override Time	If Override Trigger Date Time is selected; Override time.
Buttons	This section identifies the buttons displayed above and below the Action Details that let you perform various actions.
Save	Saves a new Action record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	Closes the Details pop-up of this action.

Creating Task Virtual Resources

- Overview
- Creating a Task Virtual Resource
    - New Task Virtual Resource
    - Edit Task Virtual Resources
- Task Virtual Resources Field Descriptions
- Task Instance Details Virtual Resources Tab
    - Outstanding Requests
    - Currently Using
    - Task Instance Virtual Resources
- Creating a Task Instance Virtual Resource

Overview

Universal Controller lets you create Task Virtual Resource records by assigning Virtual Resources to tasks via a Virtual Resources tab in the task Details.

(You also can assign Virtual Resources to tasks via the Tasks tab in a Virtual Resource Details.)

A Task Virtual Resource defines a Virtual Resource dependency for a task.

Creating a Task Virtual Resource

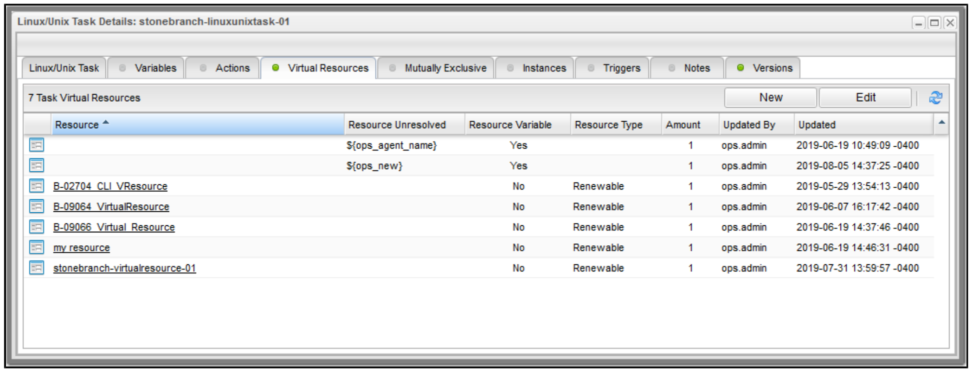
There are two methods for creating Task Virtual Resources:

1. The New button above a Task Virtual Resources list lets you either create a Task Virtual Resource by selecting a specific Virtual Resource or by specifying the Virtual Resource as a variable..
2. The Edit button button above a Task Virtual Resources list lets you create and/or delete Task Virtual Resources for a task by selecting and/or de-selecting specific Virtual Resources.

New Task Virtual Resource

Step 1

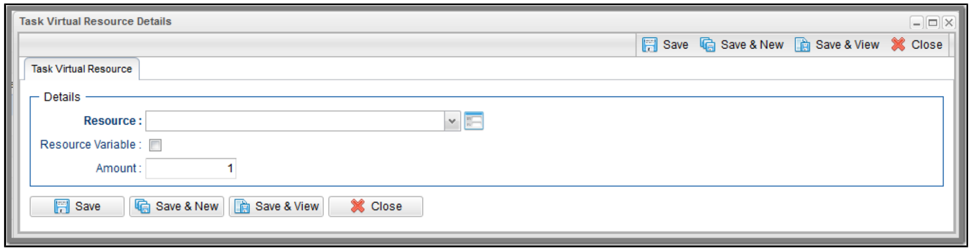
Select a task from a Tasks list and, in the task Details for that task, click the **Virtual Resources** tab. The Task Virtual Resources list displays.



7 Task Virtual Resources

Resource	Resource Unresolved	Resource Variable	Resource Type	Amount	Updated By	Updated
	${ops_agent_name}	Yes		1	ops.admin	2019-06-19 10:49:09 -0400
	${ops_new}	Yes		1	ops.admin	2019-08-05 14:37:25 -0400
B-02704_CLI_VResource		No	Renewable	1	ops.admin	2019-05-29 13:54:13 -0400
B-09064_VirtualResource		No	Renewable	1	ops.admin	2019-06-07 16:17:42 -0400
B-09066_Virtual_Resource		No	Renewable	1	ops.admin	2019-06-19 14:37:46 -0400
my resource		No	Renewable	1	ops.admin	2019-06-19 14:46:31 -0400
stonebranch-virtualresource-01		No	Renewable	1	ops.admin	2019-07-31 13:59:57 -0400

Step 2 Click the **New** button. The Task Virtual Resources Details dialog displays.


Task Virtual Resource Details
Save
Save & New
Save & View
Close
Task Virtual Resource
Details

Resource :
Resource Variable : ☐
Amount : 1

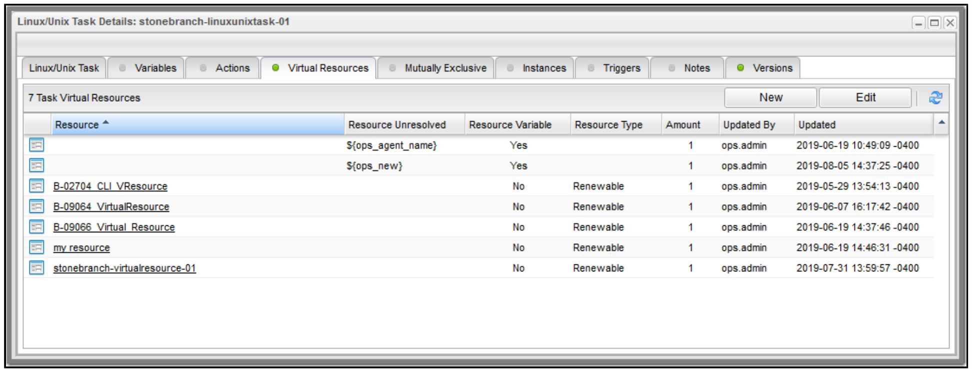
Step 3 Using the field descriptions, below, as a guide, complete the fields as needed.

Step 4 Click a **Save** button to save the record and return to the Task Virtual Resources list.

Step 5 If appropriate, repeat these steps for any additional Task Virtual Resources that you want to add.

Edit Task Virtual Resources

Step 1 Select a task from a Tasks list and, in the task Details for that task, click the **Virtual Resources** tab. The Task Virtual Resources list displays.

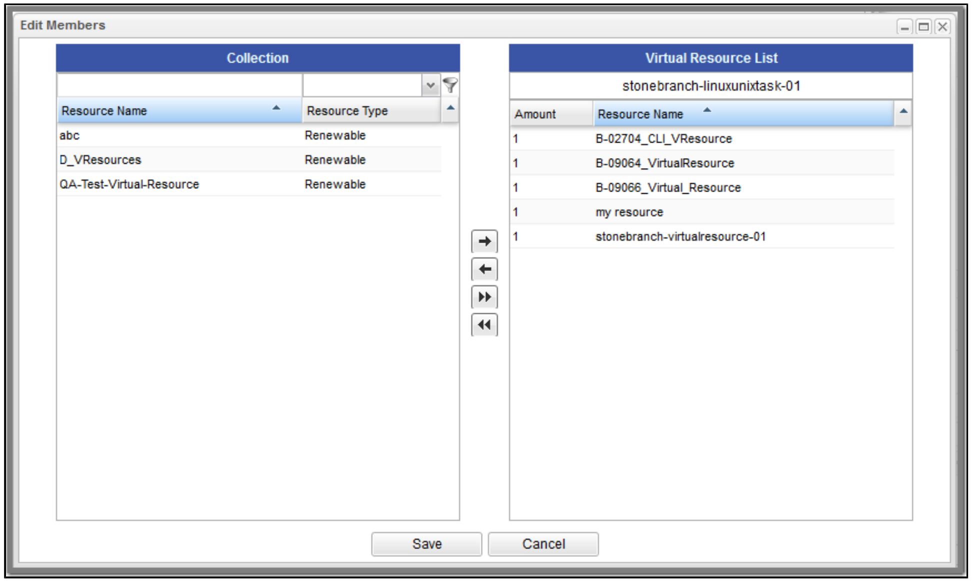

Linux/Unix Task Details: stonebranch-linuxunixtask-01
Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
New
Edit

7 Task Virtual Resources

Resource	Resource Unresolved	Resource Variable	Resource Type	Amount	Updated By	Updated
	${ops_agent_name}	Yes		1	ops.admin	2019-06-19 10:49:09 -0400
	${ops_new}	Yes		1	ops.admin	2019-08-05 14:37:25 -0400
B-02704_CLI_VResource		No	Renewable	1	ops.admin	2019-05-29 13:54:13 -0400
B-09064_VirtualResource		No	Renewable	1	ops.admin	2019-06-07 16:17:42 -0400
B-09066_Virtual_Resource		No	Renewable	1	ops.admin	2019-06-19 14:37:46 -0400
my resource		No	Renewable	1	ops.admin	2019-06-19 14:46:31 -0400
stonebranch-virtualresource-01		No	Renewable	1	ops.admin	2019-07-31 13:59:57 -0400

Step 2

Click the **Edit** button to display the Edit Member dialog.



stonebranch-linuxunixtask-01

Resource Name	Resource Type
abc	Renewable
D_VResources	Renewable
QA-Test-Virtual-Resource	Renewable

Amount	Resource Name
1	B-02704_CLI_VResource
1	B-09064_VirtualResource
1	B-09066_Virtual_Resource
1	my resource
1	stonebranch-virtualresource-01

- The Collection window displays all Virtual Resources that have not been assigned to this task.
- The Virtual Resource List window displays all Virtual Resources that have been assigned to this task.

Step 3

If you want to filter the tasks in the Collection window, click the filter icon (see Filtering for information about how to construct a filter.)

Step 4

Move virtual resources from the **Collection** window to the **Virtual Resource List** window:

- To move a single virtual resource, double-click it or click it once and then click the **>** arrow.
- To move multiple virtual resources, Ctrl-click them and then click the **>** arrow.
- To move all virtual resources, click the **>>** arrow.

To move virtual resources from the **Virtual Resource List** window to the **Collection** window:

- To move a single virtual resource, double-click it or click it once and then click the **<** arrow.
- To move multiple virtual resources, Ctrl-click them and then click the **<** arrow.
- To move all virtual resources, click the **<<** arrow.

Step 5

Click **Save**.

Task Virtual Resources Field Descriptions

The following table describes the fields and buttons in the Task Virtual Resources Details.

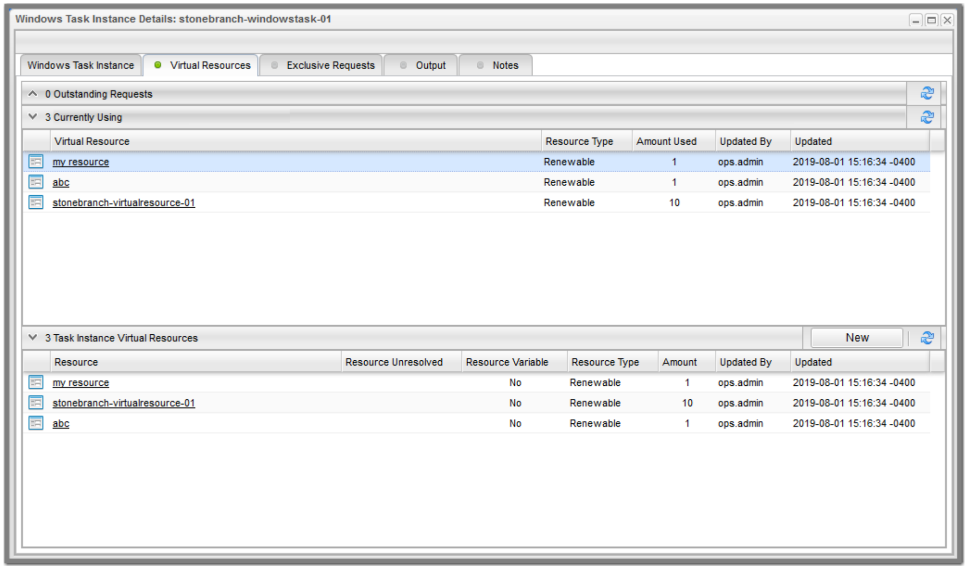
Field Name	Description
Details	This section contains details for the task virtual resource.
Resource	Allows you to select an existing Virtual Resource as a Task Virtual Resource for this task. Clicking the Virtual Resources Details icon next to the Resource field allows you to create a new Virtual Resource, but that does not automatically add it to the list of Task Virtual Resources for this task.
Resource Variable	Indication of whether the Resource field is a reference field for selecting a specific Virtual Resource (unchecked) or a text field for specifying the Resource as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Amount	Number of resource units required from the Virtual Resource.
Buttons	This section identifies the buttons displayed above and below the Step Action Details that let you perform various actions.
Save	Saves the new System Operation Step Action Details record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
Update	Saves updates to the record.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.

Task Instance Details Virtual Resources Tab

Step 1	Open a task instance Detail.

<table>
<tr>
<td>Step 2</td>
<td>
Click the Virtual Resources tab on the task instance Details to display the Virtual Resources lists for the task instance:

Outstanding Requests
Currently Using
Task Instance Virtual Resources

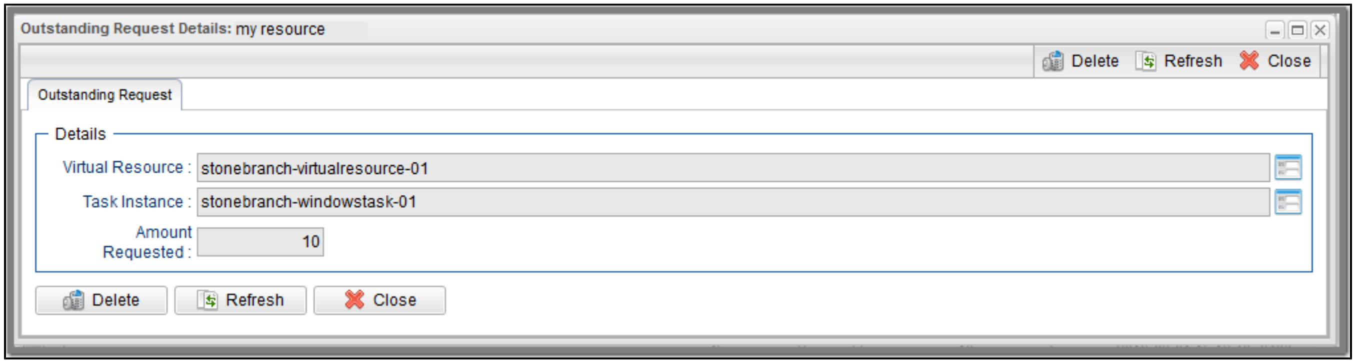

Windows Task Instance Details: stonebranch-windowstask-01
Windows Task Instance
Virtual Resources
Exclusive Requests
Output
Notes
0 Outstanding Requests
3 Currently Using
<table>
<tr><th>Virtual Resource</th><th>Resource Type</th><th>Amount Used</th><th>Updated By</th><th>Updated</th></tr>
<tr><td>my resource</td><td>Renewable</td><td>1</td><td>ops.admin</td><td>2019-08-01 15:16:34 -0400</td></tr>
<tr><td>abc</td><td>Renewable</td><td>1</td><td>ops.admin</td><td>2019-08-01 15:16:34 -0400</td></tr>
<tr><td>stonebranch-virtualresource-01</td><td>Renewable</td><td>10</td><td>ops.admin</td><td>2019-08-01 15:16:34 -0400</td></tr>
</table>
3 Task Instance Virtual Resources
New
<table>
<tr><th>Resource</th><th>Resource Unresolved</th><th>Resource Variable</th><th>Resource Type</th><th>Amount</th><th>Updated By</th><th>Updated</th></tr>
<tr><td>my resource</td><td></td><td>No</td><td>Renewable</td><td>1</td><td>ops.admin</td><td>2019-08-01 15:16:34 -0400</td></tr>
<tr><td>stonebranch-virtualresource-01</td><td></td><td>No</td><td>Renewable</td><td>10</td><td>ops.admin</td><td>2019-08-01 15:16:34 -0400</td></tr>
<tr><td>abc</td><td></td><td>No</td><td>Renewable</td><td>1</td><td>ops.admin</td><td>2019-08-01 15:16:34 -0400</td></tr>
</table>
</td>
</tr>
<tr>
<td>Step 3</td>
<td>Click the Details icon next to any resource on these list to view details about the resource.</td>
</tr>
</table>

Outstanding Requests

Outstanding requests by this task instance for the Virtual Resource.

Field Name	Description
Virtual Resource	Name of the Virtual Resource.
Resource Type	Type of Virtual Resource: • Renewable • Boundary • Depletable
Amount Requested	Number of Virtual Resource units requested for this task.
Updated By	User that last updated this record.

Updated	Date and time this record was last updated.


Outstanding Request Details: my resource
Delete
Refresh
Close
Outstanding Request
Details
Delete
Refresh
Close

Virtual Resource : stonebranch-virtualresource-01

Task Instance : stonebranch-windowstask-01

Amount Requested : 10

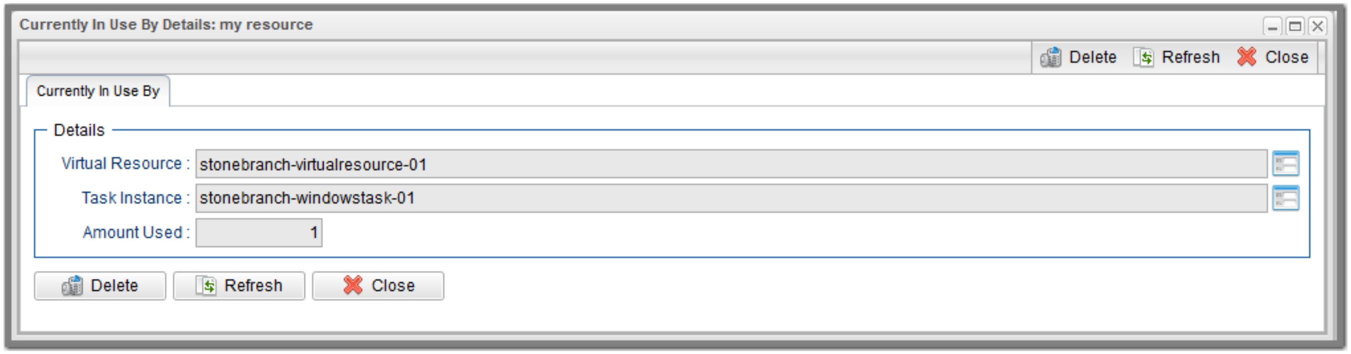
Note

⚠ To see Outstanding Requests, the task instance must be in in a Resource Wait state. For example, if a Virtual Resource has 10 units and the task requires all 10 units, launching the task twice will cause the second Task Instance to go into Resource Wait with an Outstanding Request for 10 units of the Virtual Resource.

Currently Using

Virtual Resources that this task instance is currently using.

Field Name	Description
Virtual Resource	Name of the Virtual Resource.
Resource Type	Type of Virtual Resource: • Renewable • Boundary • Depletable
Amount Requested	Number of Virtual Resource units requested.
Updated By	User that last updated this record.
Updated	Date and time this record was last updated.


Currently In Use By Details: my resource
Delete
Refresh
Close
Currently In Use By
Details

Virtual Resource : stonebranch-virtualresource-01

Task Instance : stonebranch-windowstask-01

Amount Used : 1

Delete
Refresh
Close

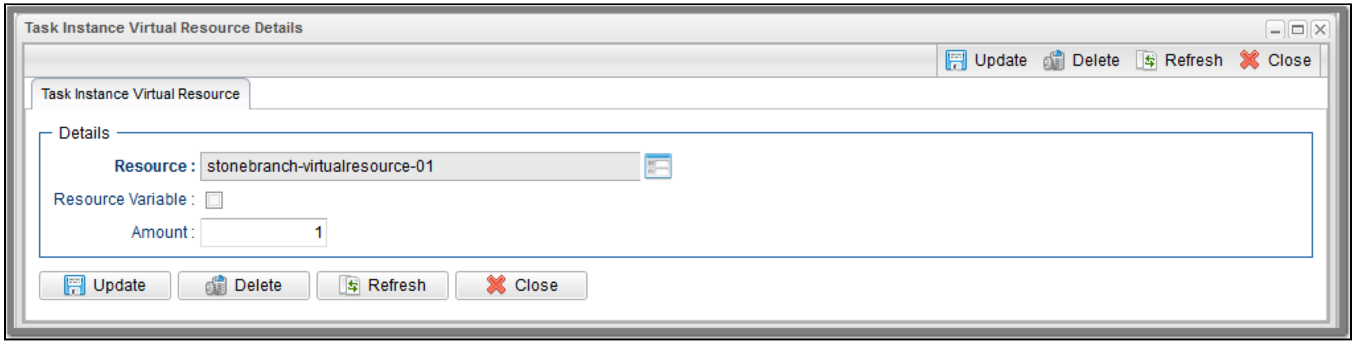
Task Instance Virtual Resources

Task Instance Virtual Resources defined for this task instance.

Note

You also can create a Task Instance Virtual Resource for a task instance.

Field Name	Description
Resource	Name of the task instance virtual resource.
Resource Unresolved	Name of a variable that will be resolved at run time to the name of the Virtual Resource.
Resource Variable	Indication of whether the Resource field of this task instance virtual resource specifies a variable (Yes) or a Virtual Resource (No).
Resource Type	Type of Virtual Resource: • Renewable • Boundary • Depletable
Amount	Number of Virtual Resource units used.
Updated By	User that last updated this record.
Updated	Date and time this record was last updated.


Task Instance Virtual Resource Details
Update
Delete
Refresh
Close
Task Instance Virtual Resource
Details
Update
Delete
Refresh
Close

Resource : stonebranch-virtualresource-01
Resource Variable : ☐
Amount : 1

Note:

Virtual Resource variables will be resolved by the Task Instance at run-time when checking if resources are required. The resolved values will not be saved; the Task Instance Virtual Resource List will continue to show unresolved values.

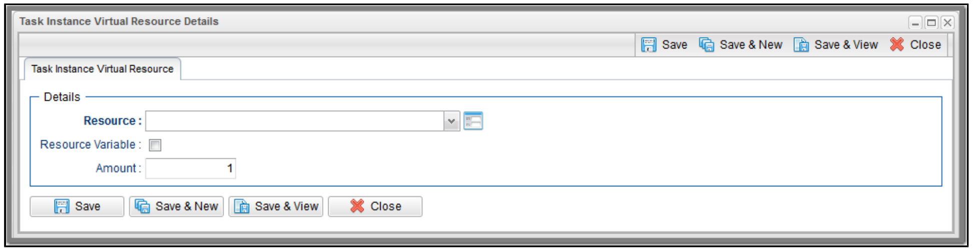
If a Virtual Resource variable cannot be resolved, the Task Instance will transition to a Start Failure status.

If a resolved Virtual Resource does not exist, the Task Instance will transition to a Start Failure status.

If there are duplicate Virtual Resources with conflicting Amount values, the Task Instance will transition to a Start Failure status.

Creating a Task Instance Virtual Resource

To create a virtual resource for a task instance:

Step 1	Display the Virtual Virtual Resources lists for a task instance.
Step 2	At the top of the Task Instance Virtual Resources list, click the New button to display a Task Instance Virtual Resource Details dialog.  Task Instance Virtual Resource Details Save Save & New Save & View Close Task Instance Virtual Resource Details Save Save & New Save & View Close **Resource :** Resource Variable : ☐ Amount : 1
Step 3	Select / enter values for the task instance virtual resource (see Task Virtual Resources Field Descriptions).
STep 4	Click the Save button to assign the virtual resource to this task instance.

Copying Tasks

- Overview
- Copying One or More Tasks from a Tasks List
- Copying a Task from the Task Details
- Copy Permissions

Overview

You can make copies of all Universal Controller records, including tasks, using the standard method for Copying a Record: selecting **Insert** on the Action menu.

However, this method does not make copies of any records that are associated with the copied record. For tasks, **Insert** does not make copies of any Variables, Actions, and Notes that are associated with the task.

The Copy option allows you to make a complete copy of a task, including all of its associated records. It does not copy referenced records, such as virtual resources, but retains the relationship to these records for the copied task.

Copying One or More Tasks from a Tasks List

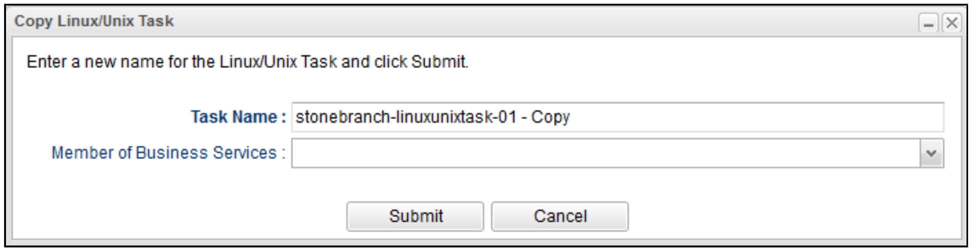
Step 1	From the Automation Center navigation pane, select **Tasks ><task type>**. The Tasks list for that task type displays.
Step 2	Locate the task(s) you want to copy (see Filtering).

Step 3

Copy the task(s):

Copy One Task

1. Right-click the **Task Name**.
2. On the Action menu, select **Copy**. A Copy Task pop-up dialog displays.



Copy Linux/Unix Task

Enter a new name for the Linux/Unix Task and click Submit.

Task Name : stonebranch-linuxunixtask-01 - Copy

Member of Business Services :

3. Enter a new name for the task and, optionally, select any Business Services that you want the task assigned to.
4. Click **Submit** to create a copy of the task.

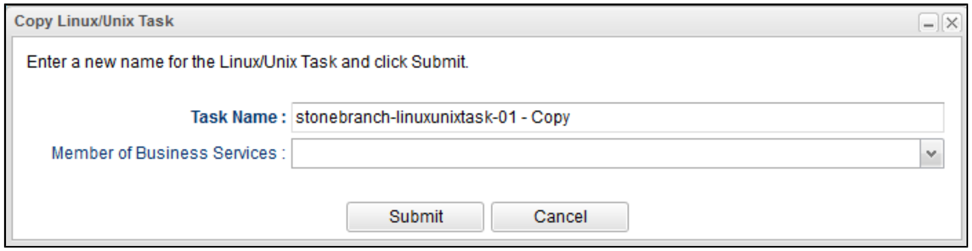
Copy Multiple Tasks

1. Ctrl-Click the tasks you want to copy.
2. Right-click any of the selected tasks.
3. On the Action menu, select **Copy**.
4. On the Confirmation pop-up that displays, click **OK**. The copied tasks are added to the list, with **- Copy** added as a suffix to the Task Name for each task. If a task with that **- Copy** name already exists, another copy is not created.

Copying a Task from the Task Details

Step 1

Select a task from a Tasks list. The Task Details for that task displays.

Step 2	Either: - Click the **Copy** button. - Right-click the Details to display the Action menu, and then click **Copy**. A Copy Task pop-up dialog displays.  **Copy Linux/Unix Task** Enter a new name for the Linux/Unix Task and click Submit. **Task Name :** stonebranch-linuxunixtask-01 - Copy Member of Business Services :
Step 3	Enter a new name for the task and, optionally, select any Business Services that you want the task assigned to.
Step 4	Click **Submit** to create a copy of the task.

Copy Permissions

To copy a Task, you must have both Read permission and Copy command permission for the Task you are copying, in addition to having Create permission for the copied Task.

Setting Mutually Exclusive Tasks

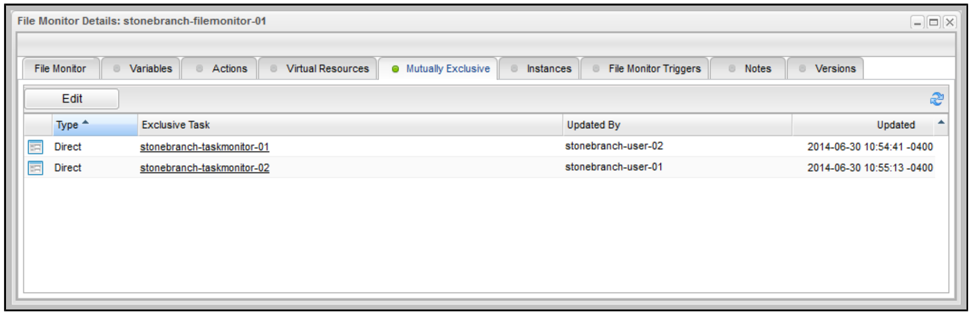
Setting Mutually Exclusive Tasks

You can set a task to be mutually exclusive with one or more other tasks. Universal Controller does not permit mutually exclusive tasks to run at the same time; if one is running, the other(s) will wait before running.

To set mutually exclusive tasks:

Step 1

Select a task from a Tasks list and, in the Task Details for that task, click the **Mutually Exclusive Tasks** tab. The Mutually Exclusive Tasks list displays a list of any tasks that have been set to be mutually exclusive with this task:


File Monitor Details: stonebranch-filemonitor-01
File Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
File Monitor Triggers
Notes
Versions
Edit

Type	Exclusive Task	Updated By	Updated
Direct	stonebranch-taskmonitor-01	stonebranch-user-02	2014-06-30 10:54:41 -0400
Direct	stonebranch-taskmonitor-02	stonebranch-user-01	2014-06-30 10:55:13 -0400

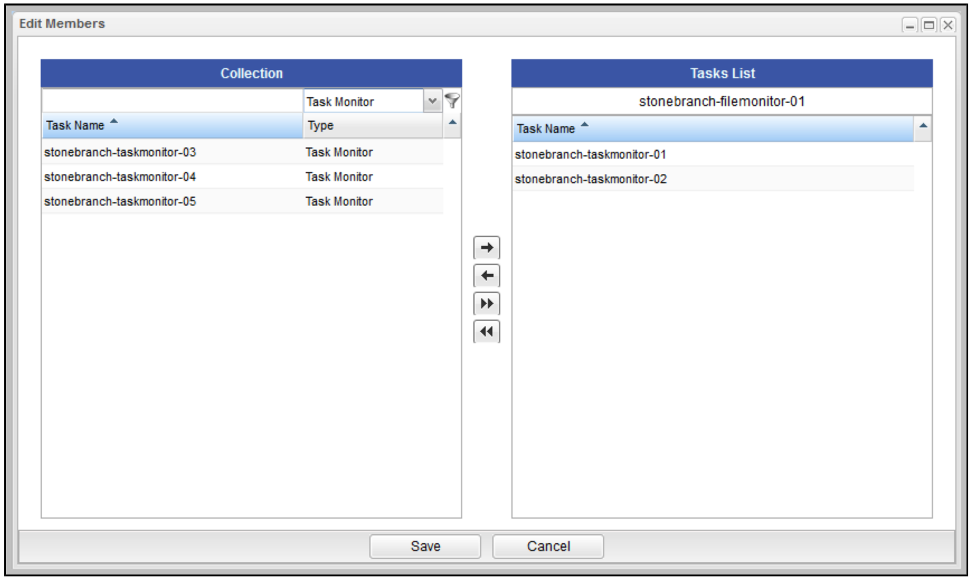
For each **Exclusive Task** on the list, the **Type** field indicates how the mutually exclusive dependency on the **Exclusive Task** was added to this task:

- **Direct** indicates that the mutually exclusive dependency on the **Exclusive Task** was added to this task manually in these task Details.
- **Indirect** indicates that the mutually exclusive dependency on the **Exclusive Task** was added to this task automatically when mutually exclusive dependency on this task was added manually to the **Exclusive Task** in its task Details.

You only can delete **Direct** mutually exclusive tasks.

Step 2

Click the **Edit** button to display the Edit Members dialog.



Collection (filter: Task Monitor)

Task Name	Type
stonebranch-taskmonitor-03	Task Monitor
stonebranch-taskmonitor-04	Task Monitor
stonebranch-taskmonitor-05	Task Monitor

Tasks List: stonebranch-filemonitor-01

Task Name
stonebranch-taskmonitor-01
stonebranch-taskmonitor-02

- The **Collection** window displays all Controller tasks. To display only a specific type of task, select that task type from the drop-down field at the top of the **Collection** window.
- The **Tasks List** window displays all tasks that are to be run mutually exclusive with this task.

Step 3

If you want to filter the tasks in the Collection window, click the filter icon (see Filtering for information about how to construct a filter.)

Step 4

Move tasks from the **Collection** window to the **Tasks List** window:

1. To move a single task, double-click it or click it once and then click the **>** arrow.
2. To move multiple tasks, Ctrl-click them and then click the **>** arrow.
3. To move all tasks, click the **>>** arrow.

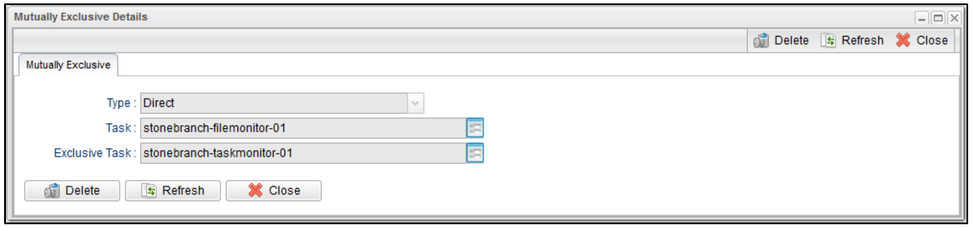
To move tasks from the **Tasks List** window to the **Collection** window:

1. To move a single task, double-click it or click it once and then click the **<** arrow.
2. To move multiple tasks, Ctrl-click them and then click the **<** arrow.
3. To move all tasks, click the **<<** arrow.

Step 5

Click **Save**. All of the tasks in the **Tasks List** window will be listed as Type **Direct** on the Mutually Exclusive list for this task, and all of the tasks in the **Tasks List**window will list this task as Type **Indirect** on *their* Mutually Exclusive Tasks lists.

Step 6 Click the Details icon for any task on the list to display its Mutually Exclusive Details.


Mutually Exclusive Details
Delete
Refresh
Close
Mutually Exclusive
Delete
Refresh
Close

Type : Direct
Task : stonebranch-filemonitor-01
Exclusive Task : stonebranch-taskmonitor-01

See the field descriptions, below, for a description of all fields that display in the Mutually Exclusive Details.

Mutually Exclusive Task Field Descriptions

The following table describes the fields that display in the Mutually Exclusive Task Details.

Field Name	Description
Type	Type of Mutually Exclusive task: Direct or Indirect.
Task	Name of the task for which this task was made Mutually Exclusive.
Exclusive Task	Name of this Mutually Exclusive task.

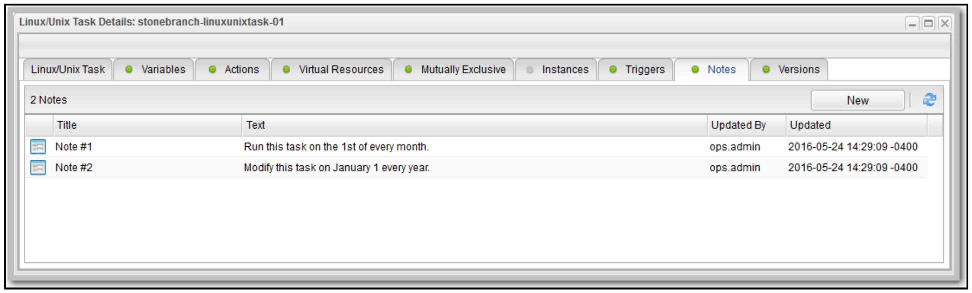
Creating Notes

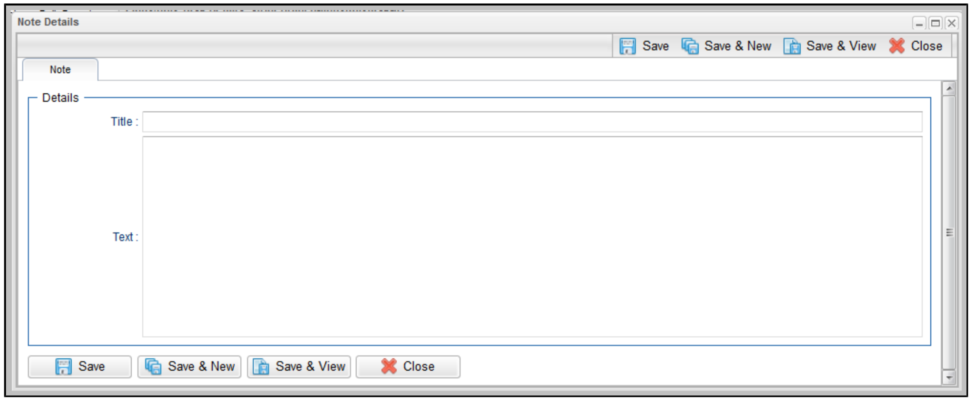
- Introduction
- Adding a Note
- Note Details Field Descriptions
- Deleting a Note

Introduction

You can create a note for any Universal Controller task or script. The note can consist of information needed by operations personnel or other instructions or tips.

Adding a Note

<table>
<tr><td>Step 1</td><td>Open the task or script to which you want to attach a note.</td></tr>
<tr><td>Step 2</td><td>Click the Notes tab. The Notes list displays a list of notes (if any) that have been created for this task or script.

Linux/Unix Task Details: stonebranch-linuxunixtask-01
Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
New
2 Notes
<table>
<tr><th>Title</th><th>Text</th><th>Updated By</th><th>Updated</th></tr>
<tr><td>Note #1</td><td>Run this task on the 1st of every month.</td><td>ops.admin</td><td>2016-05-24 14:29:09 -0400</td></tr>
<tr><td>Note #2</td><td>Modify this task on January 1 every year.</td><td>ops.admin</td><td>2016-05-24 14:29:09 -0400</td></tr>
</table>
</td></tr>
</table>

Step 3	Click the **New** button. The Note Details displays.  Note Details Save Save & New Save & View Close Note Details Title : Text : Save Save & New Save & View Close
Step 4	Enter a **Title** and **Text** for the note.
Step 5	Click a **Save** button to save the record in the Controller database.

Note Details Field Descriptions

Field Name	Description
Details	This section contains detailed information about the note.
Title	Title of this note. Displays in the Title column on the Notes list.
Text	Text of the note.
Buttons	This section identifies the buttons displayed above and below the Note Details that let you perform various actions.
Save	Saves a new record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Refresh	Refreshes any dynamic data displayed in the Details.

Delete	Deletes the current record.
Close	For pop-up view only; closes the pop-up view of this task.

Deleting a Note

To delete a note, either:

- Right-click the note in the Notes list and then click **Delete**.
- Open the note you want to delete and click the **Delete** button.

Manually Running and Controlling Tasks

- Overview
- Issuing Commands Against Task Instances
- Issuing Commands from the Activity Monitor
  - Issue a Command Against a Single Task Instance
  - Issue a Command Against Multiple Task Instances
- Issuing Commands from the Task Instances List
  - Issue a Command Against a Single Task Instance
  - Issue a Command Against Multiple Task Instances
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  - Issue a Command Against a Task Instance within the Workflow
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  - Agent-Based Task Types
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  - Launch a Task from Task Details
  - Launch a Task Manually with Temporary Variable Values
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  - Set Priority on a Task Instance from the Activity Monitor or Task Instances List
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  - Re-run a Task Instance from the Activity Monitor or Task Instances List
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- Force Finishing a Task Instance
  - Force Finish a Task Instance from the Activity Monitor or Task Instances List
  - Force Finish a Task Instance from the Workflow Monitor
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  - Force Finish (Halt) a Task Instance from the Activity Monitor or Task Instances List
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- Force Finish/Cancelling a Task Instance
  - Force Finish/Cancel a Task Instance from the Activity Monitor
  - Force Finish/Cancel a Task Instance from the Workflow Monitor
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  - Force Finish/Cancel (Halt) a Task Instance from the Activity Monitor
  - Force Finish/Cancel (Halt) a Task Instance from the Workflow Monitor
- Putting a Task Instance on Hold
  - Hold a Task Instance from the Activity Monitor or Task Instances List
  - Hold a Task Instance from the Workflow Monitor
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  - Release a Held Task Instance from the Activity Monitor or Task Instances List
  - Release a Held Task Instance from the Workflow Monitor
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- Showing or Hiding Skipped Task Instances
  - Setting Show / Hide Skipped Tasks from the Workflow Task Details
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- Unskipping a Task Instance
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    - Clearing Predecessor Dependencies of a Task Instance from the Workflow Monitor
- Clearing Resource Dependencies of a Task Instance
    - Clear Resource Dependencies of a Task Instance from the Activity Monitor or Task Instances List
    - Clear Resource Dependencies of a Task Instance from the Workflow Monitor
- Clearing Mutually Exclusive Dependencies of a Task Instance
    - Clear Mutually Exclusive Dependencies of a Task Instance from the Activity Monitor or Task Instances List
    - Clear Mutually Exclusive Dependencies of a Task Instance from the Workflow Monitor
- Clearing All Dependencies of a Task Instance
    - Clear All Dependencies of a Task Instance from the Activity Monitor or Task Instances List
    - Clear All Dependencies of a Task Instance within a Workflow from the Workflow Monitor
    - Clear All Dependencies of a Workflow Task Instance from the Workflow Monitor
- Clearing Time Wait/Delay Specifications of a Task Instance
    - Clear All Time Wait/Delay Specifications of a Task Instance from the Activity Monitor or Task Instances List
    - Clear All Time Wait/Delay Specifications of a Task Instance from the Workflow Monitor
    - Clear All Time Wait/Delay Specifications of a Task Instance from the Task Instance Details

Overview

A number of commands are available on the Activity Monitor and the Task Instances list that allow you to intervene in task processing where needed. Some commands are applicable only to certain task types and others are appropriate only when the task is in a particular status. In addition, commands require appropriate permissions.

Issuing Commands Against Task Instances

You can issue commands against task instances from:

- Activity Monitor
- Task Instances list (and the Task Instances list for a specific task)
- Workflow Monitor.

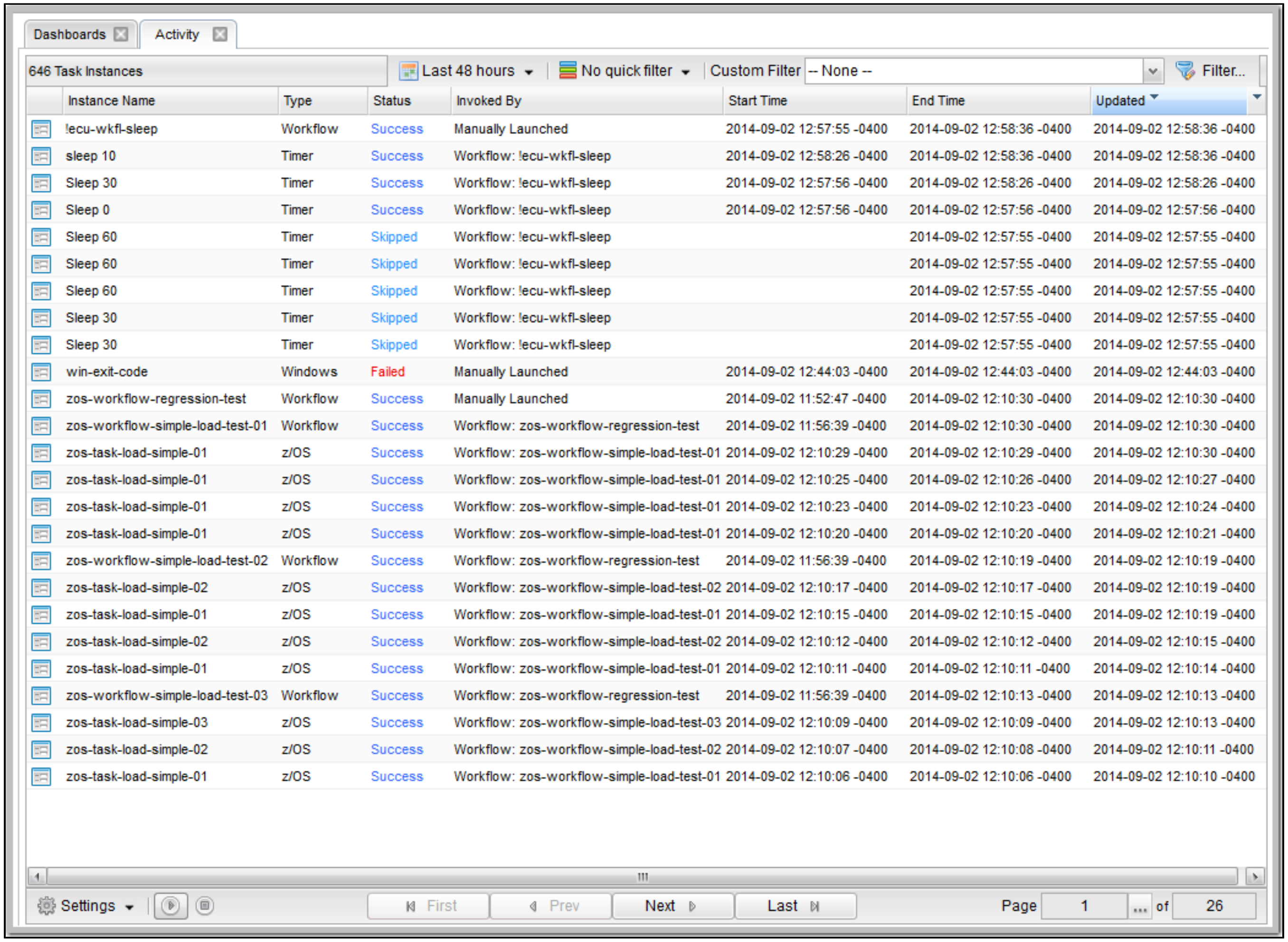
See Commands Supported for Task Instance Statuses for a list of task instances (and their statuses) for which these commands can be issued.

See Task Instance Status Types for a description of each type of task instance status.

Command	**Description**
Cancel	Cancels a running task instance (see Cancelling a Task Instance), including a task instance in a completed workflow (status = Success, Finished, Skipped).
Clear All Dependencies	Workflow tasks only: Clears all dependencies (predecessors, resources, and exclusive) of a task instance (see Clearing All Dependencies of a Task Instance).
Clear Exclusive	Clears mutually exclusive dependencies of a task instance (see Clearing Mutually Exclusive Dependencies of a Task Instance).
Clear Predecessors	Workflow tasks only: Clears predecessor dependencies of a task instance (see Clearing Predecessor Dependencies of a Task Instance).
Clear Resources	Clears resource dependencies of a task instance (see Clearing Resource Dependencies of a Task Instance).

Clear Time/Wait Delay	Clears all Wait To Start and Delay On Start specifications for this task instance (see Clearing Time Wait/Delay Specifications of a Task Instance).
Force Finish	Places a task instance into the Finished status (see Force Finishing a Task Instance), including a task instance in a completed workflow (status = Success, Finished, Skipped).
Force Finish (Halt)	Places a task instance into the Finished status (see Force Finishing (Halt) a Task Instance), including a task instance in a completed workflow (status = Success, Finished, Skipped).
Force Finish/Cancel	Cancels a task and places it into the Finished status (see Force Finish/Cancelling a Task Instance); including a task instance in a completed workflow (status = Success, Finished, Skipped).
Force Finish/Cancel (Halt)	Cancels a task and places it into the Finished status (see Force Finish/Cancelling (Halt) a Task Instance).
Hold	Temporarily prevents a task instance from running (see Putting a Task Instance on Hold).
Release	Removes a task instance from being on Hold (see Releasing a Task Instance from Hold).
Release Recursive	Workflow tasks only: Removes a workflow and its task instances from being on Hold (see Releasing a Task Instance from Hold).
Re-run	Not applicable for Workflow tasks: Re-runs a task instance (see Re-running a Task Instance), including a task instance in a completed workflow (status = Success, Finished, Skipped).
Re-run (Suppress Intermediate Failures)	Not applicable for Workflow tasks: Re-runs a task instance (see Re-running a Task Instance) specifying that intermediate failures be suppressed, including a task instance in a completed workflow (status = Success, Finished, Skipped).
Retrieve Output	Retrieves output (Standard Output and/or Standard Error, or in the case of z/OS, the Job Log) for any running or completed task instance, limited to the following supported task types: • Application Control • Remote File Monitor • Linux/Unix • PeopleSoft • SAP • Universal • Universal Command • Windows • z/OS
Set Completed	Sets a Manual Task instance to the Success status.
Set Priority	Sets the priority of a task instance in Started, Running, or Queued status to High, Medium, or Low (see Changing the Priority of a Task Instance).
Set Started	Resets the Started Time of a Manual Task instance.
Skip	Disregards a task instance (see Skipping a Task Instance).
Skip Path	Disregards a task instance and all of its dependent task instances (see Skipping a Task Instance).
Unskip	Removes the Skip status of a task instance (see Unskipping a Task Instance).

Issuing Commands from the Activity Monitor



Instance Name	Type	Status	Invoked By	Start Time	End Time	Updated
!ecu-wkfl-sleep	Workflow	Success	Manually Launched	2014-09-02 12:57:55 -0400	2014-09-02 12:58:36 -0400	2014-09-02 12:58:36 -0400
sleep 10	Timer	Success	Workflow: !ecu-wkfl-sleep	2014-09-02 12:58:26 -0400	2014-09-02 12:58:36 -0400	2014-09-02 12:58:36 -0400
Sleep 30	Timer	Success	Workflow: !ecu-wkfl-sleep	2014-09-02 12:57:56 -0400	2014-09-02 12:58:26 -0400	2014-09-02 12:58:26 -0400
Sleep 0	Timer	Success	Workflow: !ecu-wkfl-sleep	2014-09-02 12:57:56 -0400	2014-09-02 12:57:56 -0400	2014-09-02 12:57:56 -0400
Sleep 60	Timer	Skipped	Workflow: !ecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 60	Timer	Skipped	Workflow: !ecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 60	Timer	Skipped	Workflow: !ecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 30	Timer	Skipped	Workflow: !ecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 30	Timer	Skipped	Workflow: !ecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
win-exit-code	Windows	Failed	Manually Launched	2014-09-02 12:44:03 -0400	2014-09-02 12:44:03 -0400	2014-09-02 12:44:03 -0400
zos-workflow-regression-test	Workflow	Success	Manually Launched	2014-09-02 11:52:47 -0400	2014-09-02 12:10:30 -0400	2014-09-02 12:10:30 -0400
zos-workflow-simple-load-test-01	Workflow	Success	Workflow: zos-workflow-regression-test	2014-09-02 11:56:39 -0400	2014-09-02 12:10:30 -0400	2014-09-02 12:10:30 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:29 -0400	2014-09-02 12:10:29 -0400	2014-09-02 12:10:30 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:25 -0400	2014-09-02 12:10:26 -0400	2014-09-02 12:10:27 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:23 -0400	2014-09-02 12:10:23 -0400	2014-09-02 12:10:24 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:20 -0400	2014-09-02 12:10:20 -0400	2014-09-02 12:10:21 -0400
zos-workflow-simple-load-test-02	Workflow	Success	Workflow: zos-workflow-regression-test	2014-09-02 11:56:39 -0400	2014-09-02 12:10:19 -0400	2014-09-02 12:10:19 -0400
zos-task-load-simple-02	z/OS	Success	Workflow: zos-workflow-simple-load-test-02	2014-09-02 12:10:17 -0400	2014-09-02 12:10:17 -0400	2014-09-02 12:10:19 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:15 -0400	2014-09-02 12:10:15 -0400	2014-09-02 12:10:19 -0400
zos-task-load-simple-02	z/OS	Success	Workflow: zos-workflow-simple-load-test-02	2014-09-02 12:10:12 -0400	2014-09-02 12:10:12 -0400	2014-09-02 12:10:15 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:11 -0400	2014-09-02 12:10:11 -0400	2014-09-02 12:10:14 -0400
zos-workflow-simple-load-test-03	Workflow	Success	Workflow: zos-workflow-regression-test	2014-09-02 11:56:39 -0400	2014-09-02 12:10:13 -0400	2014-09-02 12:10:13 -0400
zos-task-load-simple-03	z/OS	Success	Workflow: zos-workflow-simple-load-test-03	2014-09-02 12:10:09 -0400	2014-09-02 12:10:09 -0400	2014-09-02 12:10:13 -0400
zos-task-load-simple-02	z/OS	Success	Workflow: zos-workflow-simple-load-test-02	2014-09-02 12:10:07 -0400	2014-09-02 12:10:08 -0400	2014-09-02 12:10:11 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:06 -0400	2014-09-02 12:10:06 -0400	2014-09-02 12:10:10 -0400

Issue a Command Against a Single Task Instance

Either:

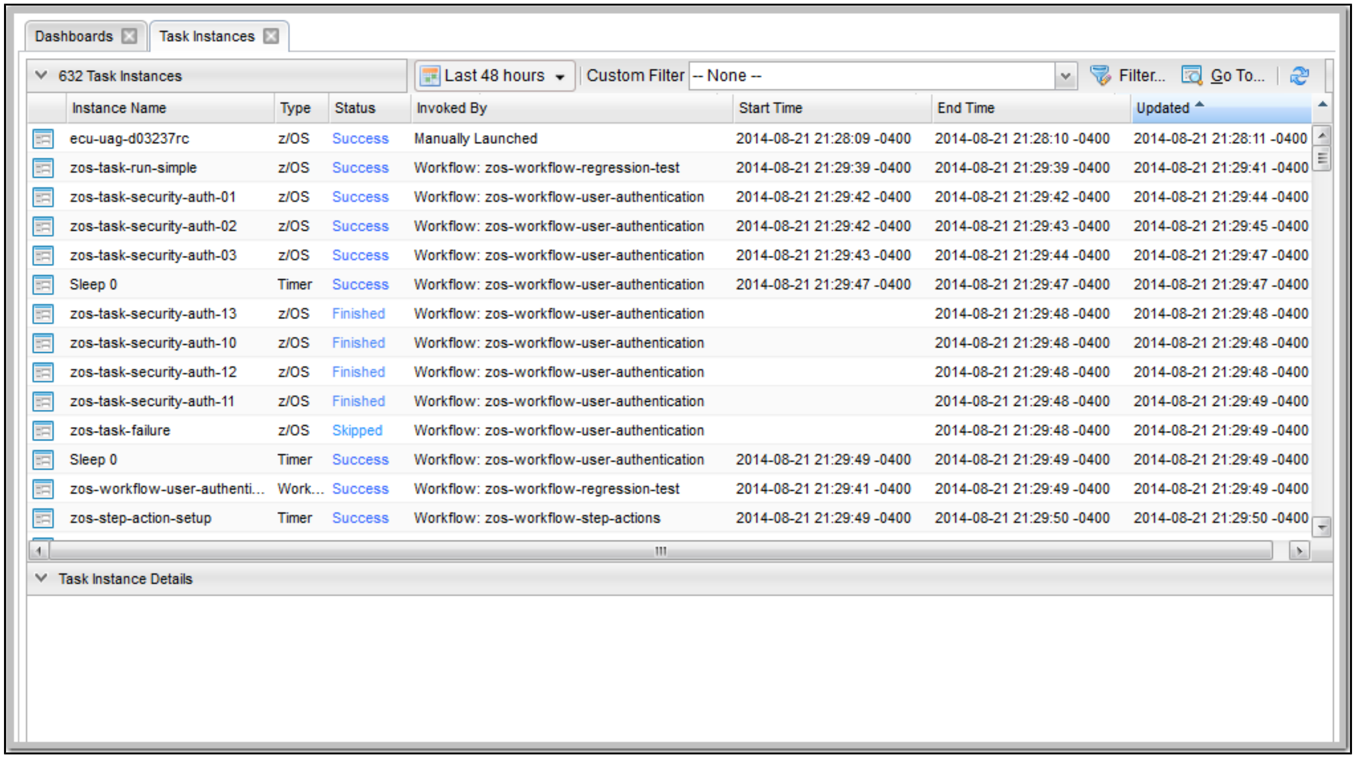
- Right-click a task instance on the list to display an Action menu of available commands for that task instance.
- Click the Details icon of a task instance to display the Task Instance Details, and then right-click in the Details to display an Action menu of available commands for that task instance.

Issue a Command Against Multiple Task Instances

Press **Ctrl** and right-click each task instance that you want to issue a command against to display an Action menu of available commands that can be issued against all of the selected task instances.

(You also can press **Ctrl** and right-click a single task instance and then press **Shift** and right-click another task instance to select the group of task instances between the first and second task instance, inclusive.)

Issuing Commands from the Task Instances List



Instance Name	Type	Status	Invoked By	Start Time	End Time	Updated
ecu-uag-d03237rc	z/OS	Success	Manually Launched	2014-08-21 21:28:09 -0400	2014-08-21 21:28:10 -0400	2014-08-21 21:28:11 -0400
zos-task-run-simple	z/OS	Success	Workflow: zos-workflow-regression-test	2014-08-21 21:29:39 -0400	2014-08-21 21:29:39 -0400	2014-08-21 21:29:41 -0400
zos-task-security-auth-01	z/OS	Success	Workflow: zos-workflow-user-authentication	2014-08-21 21:29:42 -0400	2014-08-21 21:29:42 -0400	2014-08-21 21:29:44 -0400
zos-task-security-auth-02	z/OS	Success	Workflow: zos-workflow-user-authentication	2014-08-21 21:29:42 -0400	2014-08-21 21:29:43 -0400	2014-08-21 21:29:45 -0400
zos-task-security-auth-03	z/OS	Success	Workflow: zos-workflow-user-authentication	2014-08-21 21:29:43 -0400	2014-08-21 21:29:44 -0400	2014-08-21 21:29:47 -0400
Sleep 0	Timer	Success	Workflow: zos-workflow-user-authentication	2014-08-21 21:29:47 -0400	2014-08-21 21:29:47 -0400	2014-08-21 21:29:47 -0400
zos-task-security-auth-13	z/OS	Finished	Workflow: zos-workflow-user-authentication		2014-08-21 21:29:48 -0400	2014-08-21 21:29:48 -0400
zos-task-security-auth-10	z/OS	Finished	Workflow: zos-workflow-user-authentication		2014-08-21 21:29:48 -0400	2014-08-21 21:29:48 -0400
zos-task-security-auth-12	z/OS	Finished	Workflow: zos-workflow-user-authentication		2014-08-21 21:29:48 -0400	2014-08-21 21:29:48 -0400
zos-task-security-auth-11	z/OS	Finished	Workflow: zos-workflow-user-authentication		2014-08-21 21:29:48 -0400	2014-08-21 21:29:49 -0400
zos-task-failure	z/OS	Skipped	Workflow: zos-workflow-user-authentication		2014-08-21 21:29:48 -0400	2014-08-21 21:29:49 -0400
Sleep 0	Timer	Success	Workflow: zos-workflow-user-authentication	2014-08-21 21:29:49 -0400	2014-08-21 21:29:49 -0400	2014-08-21 21:29:49 -0400
zos-workflow-user-authenti...	Work...	Success	Workflow: zos-workflow-regression-test	2014-08-21 21:29:41 -0400	2014-08-21 21:29:49 -0400	2014-08-21 21:29:49 -0400
zos-step-action-setup	Timer	Success	Workflow: zos-workflow-step-actions	2014-08-21 21:29:49 -0400	2014-08-21 21:29:50 -0400	2014-08-21 21:29:50 -0400

Issue a Command Against a Single Task Instance

Either:

- Right-click a task instance to display an Action menu of available commands for that task instance.
- Click a task instance to display the Task Instance Details below the list, or click the Details icon to display a Details pop-up for the task instance, and then right-click in the Details to display an Action menu of available commands for that task instance.

Issue a Command Against Multiple Task Instances

Press **Ctrl** and right-click each task instance that you want to issue a command against to display an Action menu of available commands that can be issued against all of the selected task instances.

(You also can press **Ctrl** and right-click a single task instance and then press **Shift** and right-click another task instance to select the group of task instances between the first and second task instance, inclusive.)

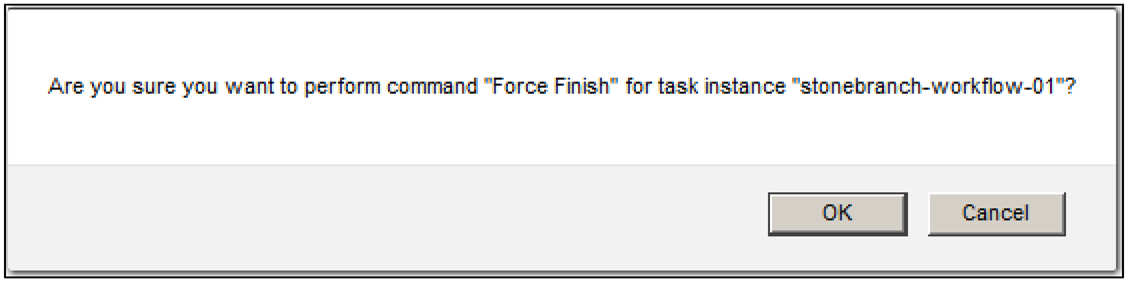
Issuing Commands from the Workflow Monitor

From the Workflow Monitor, you can issue a command against a single task instance within the workflow or against the workflow task instance itself.

Command Confirmation

If you want to receive a confirmation message after issuing a command but before the command is performed, set the System Default Confirm Task Instance Commands Universal Controller system property to **Yes** (the default is **No**).

For example:

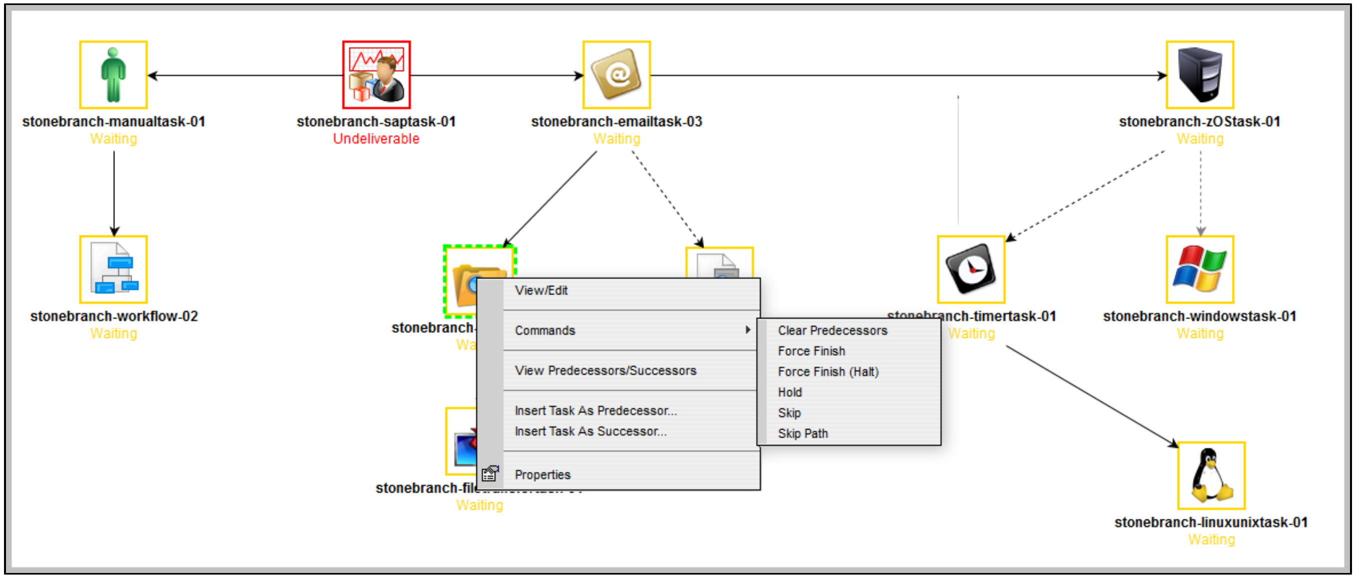


Are you sure you want to perform command "Force Finish" for task instance "stonebranch-workflow-01"?

Issue a Command Against a Task Instance within the Workflow

Step 1	Right-click the task instance to display a pop-up menu of commands appropriate for the selected task instance.
Step 2	Click **Commands** and then click the command that you want to issue against the selected task instance.

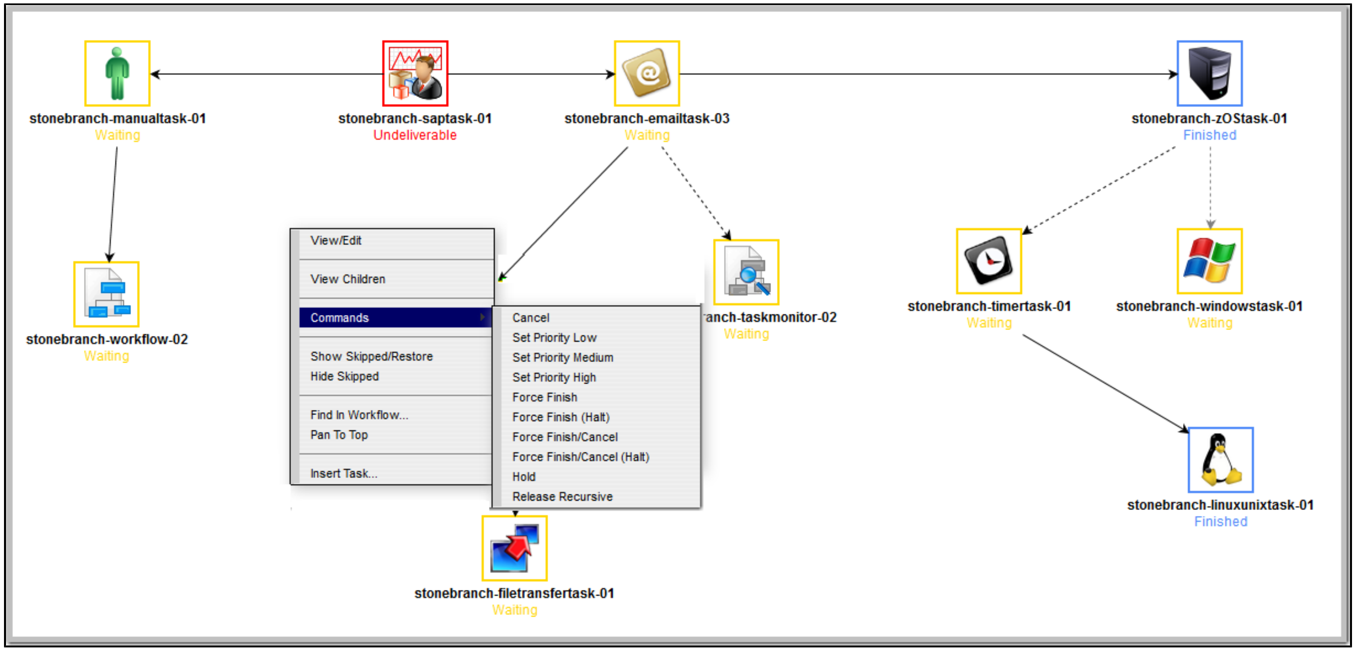
For example:


stonebranch-manualtask-01
Waiting
stonebranch-saptask-01
Undeliverable
stonebranch-emailtask-03
Waiting
stonebranch-zOStask-01
Waiting
stonebranch-workflow-02
Waiting
stonebranch-
Wa
stonebranch-timertask-01
Waiting
stonebranch-windowstask-01
Waiting
stonebranch-fil
Waiting
stonebranch-linuxunixtask-01
Waiting
View/Edit
Commands
View Predecessors/Successors
Insert Task As Predecessor...
Insert Task As Successor...
Properties
Clear Predecessors
Force Finish
Force Finish (Halt)
Hold
Skip
Skip Path

Issue a Command Against the Workflow Task Instance

Step 1	Right-click the Workflow Monitor canvas to display a pop-up menu of commands appropriate for the workflow task instance.
Step 2	Click **Commands** and then click the command that you want to issue against the workflow task instance.

For example:


stonebranch-manualtask-01
Waiting
stonebranch-saptask-01
Undeliverable
stonebranch-emailtask-03
Waiting
stonebranch-zOStask-01
Finished
stonebranch-workflow-02
Waiting
View/Edit
View Children
Commands
Show Skipped/Restore
Hide Skipped
Find In Workflow...
Pan To Top
Insert Task...
Cancel
Set Priority Low
Set Priority Medium
Set Priority High
Force Finish
Force Finish (Halt)
Force Finish/Cancel
Force Finish/Cancel (Halt)
Hold
Release Recursive
anch-taskmonitor-02
Waiting
stonebranch-timertask-01
Waiting
stonebranch-windowstask-01
Waiting
stonebranch-linuxunixtask-01
Finished
stonebranch-filetransfertask-01
Waiting

Commands Supported for Task Instance Statuses

The following table identifies all possible task instance statuses, the task types they are valid for, and the commands that you can issue against a task instance in each status.

For a description of each status, see Task Instance Status Types.

For a description of each command, see Issuing Commands Against Task Instances.

For details and instructions on issuing these commands, see the specific section (below) on this page.

Status	Task Type	Supported Commands
Action Required (60)	Manual	Cancel Force Finish Force Finish (Halt) Force Finish/Cancel Force Finish/Cancel (Halt) Set Started Set Completed

Cancel Pending (99)	Agent-based	Force Finish Force Finish (Halt) Retrieve Output
Cancelled (130)	All	Force Finish Force Finish (Halt) Re-run - Not applicable for Workflow tasks. Re-run (Suppress Intermediate Failures) - Not applicable for Workflow tasks. Retrieve Output
Confirmation Required (125)	z/OS	Force Finish Force Finish (Halt) Re-run - Not applicable for Workflow tasks. Re-run (Suppress Intermediate Failures) - Not applicable for Workflow tasks. Retrieve Output
Defined (0)	All	Clear All Dependencies Clear Predecessors Clear Time Wait/Delay Force Finish Force Finish (Halt) Hold Skip Skip Path Release Recursive - Workflow tasks only.
Exclusive Requested (22)	All	Clear All Dependencies Force Finish Force Finish (Halt) Hold Skip Skip Path
Exclusive Wait (23)	All	Clear All Dependencies Clear Exclusive Force Finish Force Finish (Halt) Hold Skip Skip Path Release Recursive - Workflow tasks only.

Execution Wait (33)	Agent-based	Force Finish Force Finish (Halt) Hold Skip Skip Path
Failed (140)	All (except Workflows)	Force Finish Force Finish (Halt) Re-run - Not applicable for Workflow tasks. Re-run (Suppress Intermediate Failures) - Not applicable for Workflow tasks. Retrieve Output
Finished (190)	All	Re-run - Not applicable for Workflow tasks. Re-run (Suppress Intermediate Failures) - Not applicable for Workflow tasks. Retrieve Output
Held (20)	All	Clear All Dependencies Clear Time Wait/Delay Clear Predecessors Force Finish Force Finish (Halt) Release Release Recursive - Workflow tasks only. Skip Skip Path
In Doubt (110)	Agent-based	Force Finish Force Finish (Halt) Re-run - Not applicable for Workflow tasks. Re-run (Suppress Intermediate Failures) - Not applicable for Workflow tasks. Retrieve Output
Queued (40)	Agent-based	Cancel Force Finish Force Finish (Halt) Hold Set Priority
Resource Requested (25)	All tasks using Virtual Resources	Clear All Dependencies Force Finish Force Finish (Halt) Hold Skip Skip Path

Resource Wait (30)	All tasks using Virtual Resources	Clear All Dependencies Clear Resources Force Finish Force Finish (Halt) Hold Skip Skip Path Release Recursive - Workflow tasks only.
Running (80)	All	Cancel Force Finish Force Finish (Halt) Force Finish/Cancel Force Finish/Cancel (Halt) Release Recursive - Workflow tasks only. Retrieve Output Set Priority
Running Problems (81)	Workflow	Cancel Force Finish Force Finish (Halt) Force Finish/Cancel Force Finish/Cancel (Halt) Hold Release Recursive - Workflow tasks only.
Skipped (180)	All	Unskip
Start Failure (120)	All	Force Finish Force Finish (Halt) Re-run - Not applicable for Workflow tasks. Re-run (Suppress Intermediate Failures) - Not applicable for Workflow tasks. Retrieve Output
Started (70)	Agent-based and Manual	Cancel Force Finish Force Finish (Halt) Force Finish/Cancel Force Finish/Cancel (Halt) Retrieve Output Set Completed - Manual tasks only. Set Priority
Submitted (43)	z/OS	Force Finish Force Finish (Halt)

Success (200)	All	- Re-run - Not applicable for Workflow tasks. - Re-run (Suppress Intermediate Failures) - Not applicable for Workflow tasks. - Retrieve Output
Time Wait (15)	All (except Timer)	- Clear All Dependencies - Clear Time Wait/Delay - Force Finish - Force Finish (Halt) - Hold - Skip - Skip Path - Release Recursive - Workflow tasks only
Undeliverable (35)	Agent-based	- Force Finish - Force Finish (Halt) - Hold - Skip - Skip Path
Waiting (10)	All	- Clear All Dependencies - Clear Predecessors - Clear Time Wait/Delay - Force Finish - Force Finish (Halt) - Hold - Skip - Skip Path - Release Recursive - Workflow tasks only

Agent-Based Task Types

The following task types are Agent-based task types:

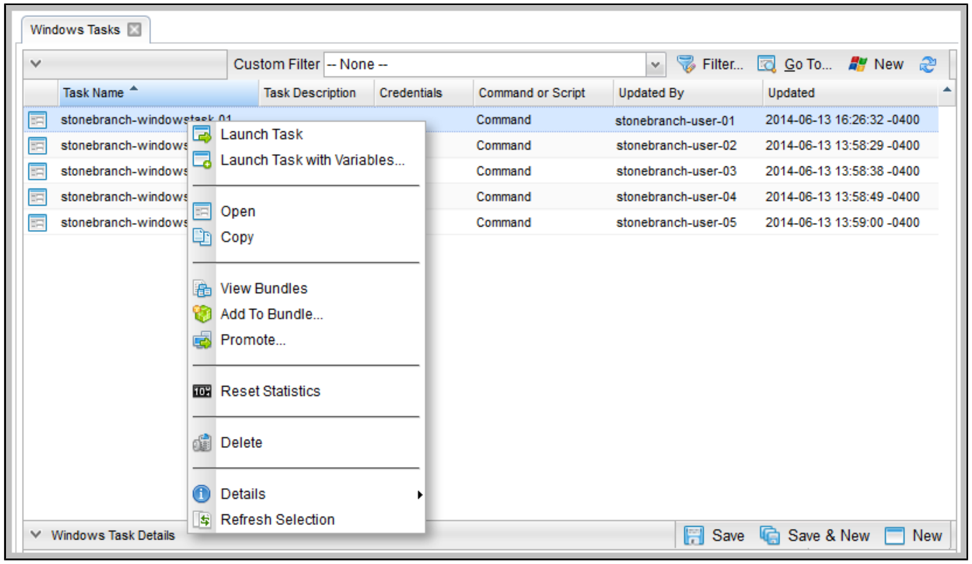
- Linux/Unix
- Windows
- z/OS
- Universal Command
- SAP
- PeopleSoft
- File Transfer
- Agent File Monitor
- Remote File Monitor
- System Monitor
- Universal

Manually Launching a Task

Two methods are available for manually launching a task:

- From a tasks list
- From task Details

Launch One or More Tasks from a Tasks List

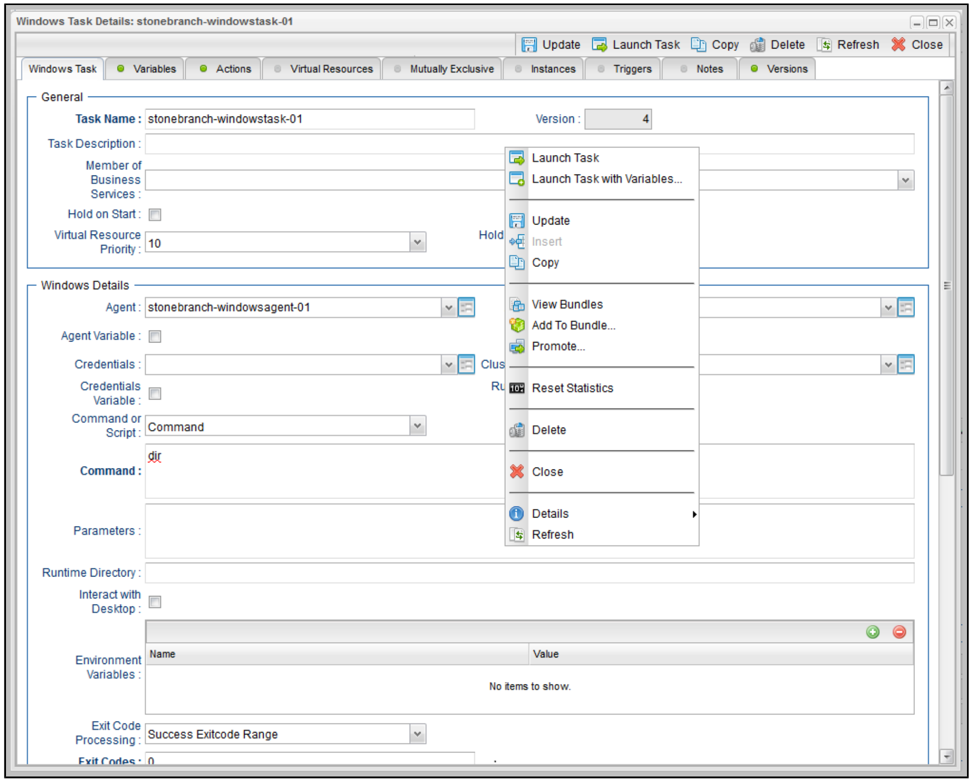
Step 1	From the **Automation Center** navigation pane, select **Tasks ><type of task>**. The Tasks list for that task type displays.
Step 2	Either: • Right-click a single task. • Ctrl-click multiple tasks, release the Ctrl key, and right-click any of the selected tasks. An Action menu displays.  Windows Tasks Custom Filter -- None -- Filter... Go To... New Task Name Task Description Credentials Command or Script Updated By Updated Launch Task Launch Task with Variables... Open Copy View Bundles Add To Bundle... Promote... Reset Statistics Delete Details Refresh Selection Windows Task Details Save Save & New New stonebranch-windowstask-01 · Command · stonebranch-user-01 · 2014-06-13 16:26:32 -0400 stonebranch-windows · Command · stonebranch-user-02 · 2014-06-13 13:58:29 -0400 stonebranch-windows · Command · stonebranch-user-03 · 2014-06-13 13:58:38 -0400 stonebranch-windows · Command · stonebranch-user-04 · 2014-06-13 13:58:49 -0400 stonebranch-windows · Command · stonebranch-user-05 · 2014-06-13 13:59:00 -0400
Step 3	Select either: • **Launch Task** • Launch Task with Variables Note If you selected multiple tasks, **Launch with Variables** is disabled. Universal Controller creates an instance of each selected task and runs it.
Step 4	To view Details about running task instances, select **Task Instances > Activity** from the **Automation Center** navigation pane and click on the task instance.

Launch a Task from Task Details

<table>
<tr><td>Step 1</td><td>Select the task you want to launch.</td></tr>
<tr><td>Step 2</td><td>Either:

Click the Launch Task button.
Right-click anywhere in the Details to display an Action menu and click either:

Launch Task
Launch Task with Variables

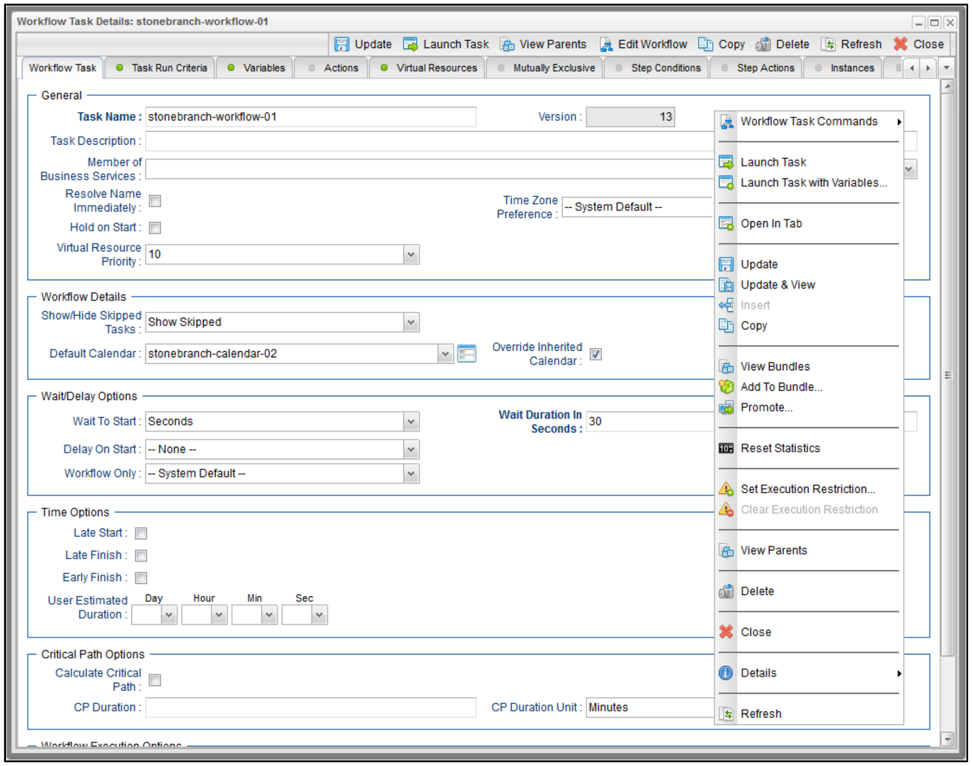

Windows Task Details: stonebranch-windowstask-01
Update
Launch Task
Copy
Delete
Refresh
Close
Windows Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Windows Details
Launch Task
Launch Task with Variables...
Update
Insert
Copy
View Bundles
Add To Bundle...
Promote...
Reset Statistics
Delete
Close
Details
Refresh
Name
Value
No items to show.
Task Name : stonebranch-windowstask-01
Version : 4
Task Description :
Member of Business Services :
Hold on Start : ☐
Virtual Resource Priority : 10
Agent : stonebranch-windowsagent-01
Agent Variable : ☐
Credentials :
Credentials Variable : ☐
Command or Script : Command
Command : dir
Parameters :
Runtime Directory :
Interact with Desktop : ☐
Environment Variables :
Exit Code Processing : Success Exitcode Range
Exit Codes : 0
</td></tr>
</table>

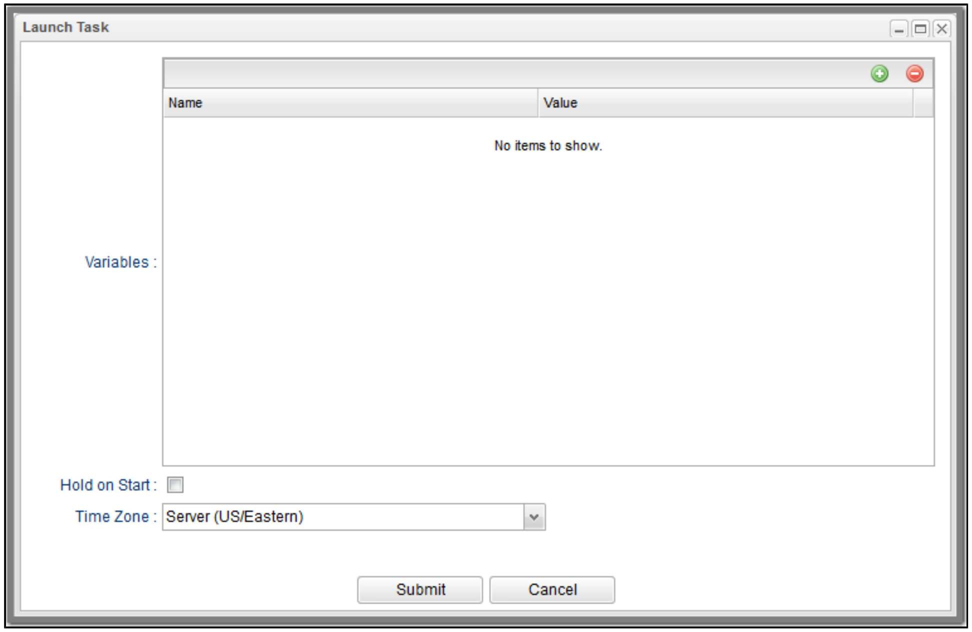
Launch a Task Manually with Temporary Variable Values

The Controller supports a Launch with Variables feature that allows you to quickly provide values for the variables specified in the task and launch it. All task types support the Launch with Variables feature.

(In the following procedure, the task is a Workflow already set up with variables where required.)

To launch a task using Launch with Variables:

Step 1	Display the task you want to launch.
Step 2	Access the Action menu.  Task Name : stonebranch-workflow-01 Version : 13 Resolve Name Immediately : ☐ Time Zone Preference : -- System Default -- Hold on Start : ☐ Virtual Resource Priority : 10 Show/Hide Skipped Tasks : Show Skipped Default Calendar : stonebranch-calendar-02 Override Inherited Calendar : ☑ Wait To Start : Seconds Wait Duration In Seconds : 30 Delay On Start : -- None -- Workflow Only : -- System Default -- Late Start : ☐ Late Finish : ☐ Early Finish : ☐ Calculate Critical Path : ☐ CP Duration Unit : Minutes Workflow Task Details: stonebranch-workflow-01 Update Launch Task View Parents Edit Workflow Copy Delete Refresh Close Workflow Task Task Run Criteria Variables Actions Virtual Resources Mutually Exclusive Step Conditions Step Actions Instances General Task Description : Member of Business Services : Workflow Details Wait/Delay Options Time Options User Estimated Duration : Day Hour Min Sec Critical Path Options CP Duration : Workflow Execution Options Workflow Task Commands Launch Task Launch Task with Variables... Open In Tab Update Update & View Insert Copy View Bundles Add To Bundle... Promote... Reset Statistics Set Execution Restriction... Clear Execution Restriction View Parents Delete Close Details Refresh

Step 3	Select **Launch Task with Variables...**. The Launch Task (with Variables) dialog displays. Any variables attached to this task automatically are displayed in alphabetic order (a-z).  Launch Task Variables : Name | Value No items to show. Hold on Start : ☐ Time Zone : Server (US/Eastern)
Step 4	As needed, set the variable values or add new variables. The window allows you to specify up to six variable and value pairs.
Step 5	If you want to put the task instance in held status when the task is started, select **Hold on Start**. A **Hold Reason** field then displays which allows you to enter information about why the task will be put on hold when it starts.
Step 6	If the task is a Workflow (as shown here), and: • The Time Zone Preference field in the Workflow Details = Inherited, or the Time Zone Preference field in the Workflow Details = --System Default-- and the Task Timezone Preference Universal Controller system property = Inherited, the dialog shows the **Time Zone** field. • The Time Zone Preference field in the Workflow Details = Server, or the Time Zone Preference field in the Workflow Details = --System Default-- and the Task Timezone Preference Universal Controller system property = Server, the dialog does not show the **Time Zone** field. **Time Zone** lets you select a time zone for this specific launch of the Workflow so that it runs, and evaluates both Run Criteria and Execution Restrictions, according to that time zone. By default, the value of **Time Zone** is Server.
Step 7	When you are finished, click **Submit**. The Controller populates the variables with the values you supplied and launches the task.

Changing the Priority of a Task Instance

You can change the priority of a task instance so that it will run sooner or later, as described below.

The priority specified here is meaningful only in relation to the priority setting of other tasks sent to that Agent from the same Controller instance.

You can change the priority of a Linux/Unix, Universal, Windows, or z/OS task instance while it is in any of the following statuses: Started, Running, Queued.

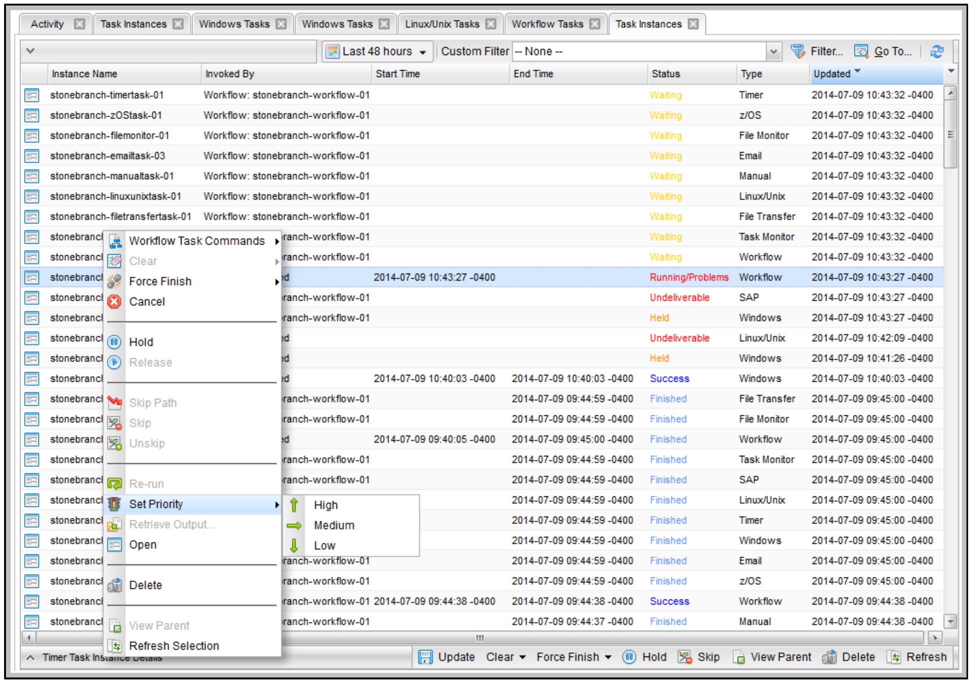
Two methods are available for changing the priority of a task instance:

- From the Activity Monitor or Task Instances list
- From the Workflow Monitor

Set Priority on a Task Instance from the Activity Monitor or Task Instances List

Step 1 Select the task instance for which you want to set the priority.

Step 2 Right-click the task instance and, on the Action menu, select the priority level.


Activity
Task Instances
Windows Tasks
Windows Tasks
Linux/Unix Tasks
Workflow Tasks
Task Instances
Last 48 hours
Custom Filter
-- None --
Filter...
Go To...
Workflow Task Commands
Clear
Force Finish
Cancel
Hold
Release
Skip Path
Skip
Unskip
Re-run
Set Priority
Retrieve Output...
Open
Delete
View Parent
Refresh Selection
High
Medium
Low
Timer Task Instance Details
Update
Clear
Force Finish
Hold
Skip
View Parent
Delete
Refresh

Instance Name	Invoked By	Start Time	End Time	Status	Type	Updated
stonebranch-timertask-01	Workflow: stonebranch-workflow-01			Waiting	Timer	2014-07-09 10:43:32 -0400
stonebranch-zOStask-01	Workflow: stonebranch-workflow-01			Waiting	z/OS	2014-07-09 10:43:32 -0400
stonebranch-filemonitor-01	Workflow: stonebranch-workflow-01			Waiting	File Monitor	2014-07-09 10:43:32 -0400
stonebranch-emailtask-03	Workflow: stonebranch-workflow-01			Waiting	Email	2014-07-09 10:43:32 -0400
stonebranch-manualtask-01	Workflow: stonebranch-workflow-01			Waiting	Manual	2014-07-09 10:43:32 -0400
stonebranch-linuxunixtask-01	Workflow: stonebranch-workflow-01			Waiting	Linux/Unix	2014-07-09 10:43:32 -0400
stonebranch-filetransfertask-01	Workflow: stonebranch-workflow-01			Waiting	File Transfer	2014-07-09 10:43:32 -0400
stonebranc	ranch-workflow-01			Waiting	Task Monitor	2014-07-09 10:43:32 -0400
stonebranc	ranch-workflow-01			Waiting	Workflow	2014-07-09 10:43:32 -0400
stonebranc	d	2014-07-09 10:43:27 -0400		Running/Problems	Workflow	2014-07-09 10:43:27 -0400
stonebranc	ranch-workflow-01			Undeliverable	SAP	2014-07-09 10:43:27 -0400
stonebranc	ranch-workflow-01			Held	Windows	2014-07-09 10:43:27 -0400
stonebranc	d			Undeliverable	Linux/Unix	2014-07-09 10:42:09 -0400
stonebranc	d			Held	Windows	2014-07-09 10:41:26 -0400
stonebranc	d	2014-07-09 10:40:03 -0400	2014-07-09 10:40:03 -0400	Success	Windows	2014-07-09 10:40:03 -0400
stonebranc	ranch-workflow-01		2014-07-09 09:44:59 -0400	Finished	File Transfer	2014-07-09 09:45:00 -0400
stonebranc	ranch-workflow-01		2014-07-09 09:44:59 -0400	Finished	File Monitor	2014-07-09 09:45:00 -0400
stonebranc	d	2014-07-09 09:40:05 -0400	2014-07-09 09:45:00 -0400	Finished	Workflow	2014-07-09 09:45:00 -0400
stonebranc	ranch-workflow-01		2014-07-09 09:44:59 -0400	Finished	Task Monitor	2014-07-09 09:45:00 -0400
stonebranc	ranch-workflow-01		2014-07-09 09:44:59 -0400	Finished	SAP	2014-07-09 09:45:00 -0400
stonebranc			2014-07-09 09:44:59 -0400	Finished	Linux/Unix	2014-07-09 09:45:00 -0400
stonebranc			2014-07-09 09:44:59 -0400	Finished	Timer	2014-07-09 09:45:00 -0400
stonebranc			2014-07-09 09:44:59 -0400	Finished	Windows	2014-07-09 09:45:00 -0400
stonebranc	ranch-workflow-01		2014-07-09 09:44:59 -0400	Finished	Email	2014-07-09 09:45:00 -0400
stonebranc	ranch-workflow-01		2014-07-09 09:44:59 -0400	Finished	z/OS	2014-07-09 09:45:00 -0400
stonebranc	ranch-workflow-01	2014-07-09 09:44:38 -0400	2014-07-09 09:44:38 -0400	Success	Workflow	2014-07-09 09:44:38 -0400
stonebranc	ranch-workflow-01		2014-07-09 09:44:37 -0400	Finished	Manual	2014-07-09 09:44:38 -0400

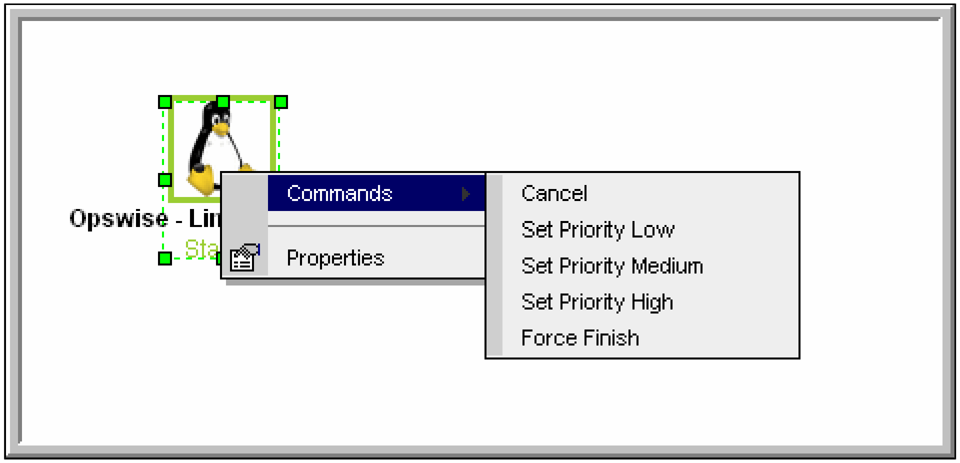
Step 3 When the Set Priority command has been executed, the Controller displays the following message at the bottom of the list:

`Command Set Priority <High/Medium/Low> successfully against task instance <name>.`

Set Priority on a Task Instance from the Workflow Monitor

Step 1 View the Workflow that contains the task instance for which you want to set the priority.

Step 2 Select the task instance for which you want to set priority.

Step 3	Select **Commands**.  Opswise - Lin Sta Commands Properties Cancel Set Priority Low Set Priority Medium Set Priority High Force Finish
Step 4	Select a priority for the task instance.

Re-running a Task Instance

If a task instance is part of a Workflow, you can re-run the task instance as long as the task instance and the Workflow have not been deleted.

If a task instance is not part of a Workflow, you can re-run the task instance as long as the task instance has not been been deleted.

To qualify for re-run, a task instance must be in one of the following statuses: Success, Start Failure, Failed, Cancelled, Finished.

Additionally, you can re-run a task instance in the In Doubt status if the Allow In Doubt Re-run Universal Controller system property is set to true.

To suppress intermediate failures during a manual re-run, use Re-run (Suppress Intermediate Failures) instead of Re-run.

Typically, you can re-run multiple task instances; however, task instances in the In Doubt status must be re-run one instance at a time.

You can re-run a task even if it already is scheduled for automatic retry. The retry attempt counts as one of the scheduled retries.

Note

⚠ You cannot re-run a Workflow task instance. However, you can re-insert a sub-Workflow into an active Workflow task instance in order to re-run it.

When you re-run a task instance, the Controller uses the same task instance. That is, the new task instance has the same sys_id. However, you can view the two task instances distinctly on the History list (one for each time it ran).

Two methods are available for re-running a task instance:

- From the Activity Monitor or Task Instances list
- From the Workflow Monitor (if the task instance is running as part of a Workflow)

Suppressing Intermediate Failures

If a task instance is in the Failed status following the usage of Re-run (Suppress Intermediate Failures), the following will be suppressed.

- All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status.
- Workflow conditional path processing; any Successors waiting on a failure path will not be released.
- Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status resulting from Re-run (Suppress Intermediate Failures).
- Any Workflow containing the Failed task instance will not transition to the Running/Problems status.

Re-run a Task Instance from the Activity Monitor or Task Instances List

Step 1	Select the task instance you want to re-run.
Step 2	Click **Re-run**. The task status changes to the next appropriate status as though it had just been launched.

Re-run a Task Instance from the Workflow Monitor

Step 1	View the Workflow that contains the task instance you want to re-run.
Step 2	Select the task instance you want to re-run.
Step 3	Select **Commands**.
Step 4	Select **Re-run**. The task status changes to the next appropriate status as though it had just been launched, and the Workflow Console opens to display information about the re-run.

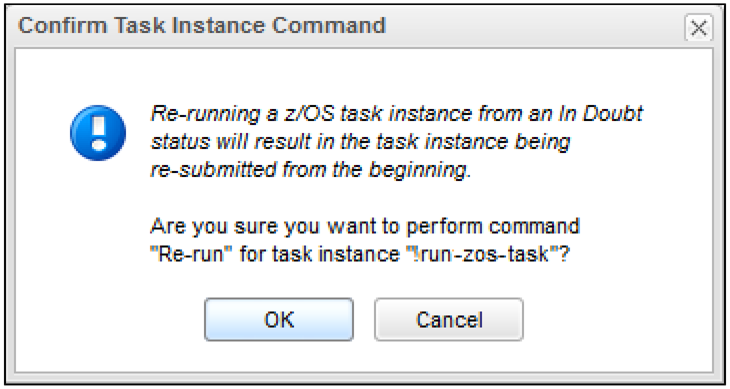
Re-run a z/OS Task Instance in the In Doubt Status

If a z/OS task instance is in the In Doubt status, re-running the task instance will re-submit it from the beginning, which is equivalent to performing an Insert Task of the same task into the Workflow except, in this case, the UUID will not change.

Note

⚠ The standard clean-up of sequential datasets still applies to avoid a NOTCAT2 condition. For information on how to prevent automatic data set deletion from occurring when the task instance is re-submitted, see Disabling Automatic Data Set Deletion.

If you choose to re-run a z/OS task instance from an In Doubt status, a confirmation pop-up displays to make sure that you are aware that the task instance will be re-submitted from the beginning.



Re-running a z/OS task instance from an In Doubt status will result in the task instance being re-submitted from the beginning.

Are you sure you want to perform command "Re-run" for task instance "run-zos-task"?

Note

The confirmation for z/OS Re-run from an In Doubt status will happen regardless of the System Default Confirm Task Instance Commands Universal Controller system property value.

Cancelling a Task Instance

The Cancel command cancels a running task instance.

You can cancel a task instance while it is in any of the following statuses: Queued, Action Required, Started, Running.

If the task instance is part of a Workflow, you also can Cancel the task instance if the task instance is re-run after the Workflow completes.

For tasks that run on Agents, including Windows, Linux, Unix, z/OS, FTP, Agent File Monitor, and Universal Command tasks, the Cancel command is sent to the Agent.

- If the task instance has not yet been launched, it does not launch.
- If the task instance already has been launched, the Agent cancels it, if possible.
- If the task instance is a Workflow, any of its task instances in Running status go to Cancelled status; the Workflow itself goes to Running/Problems status.
- If the task instance is in a Workflow, the Workflow goes to Running/Problems status. If the task is re-run, the Workflow returns to Running status.

Two methods are available for cancelling a task instance:

- From the Activity Monitor or Task Instances list
- From the Workflow Monitor (if the task instance is running as part of a Workflow)

Note

Cancelling a Web Service task instance with Protocol = SOAP is not supported.

Cancelling a PeopleSoft task instance cancels the PeopleSoft process itself, not the PeopleSoft task process. Once the Peoplesoft process has been cancelled, its status will filter through to the PeopleSoft task.

Cancel a Task Instance from the Activity Monitor or Task Instances List

Step 1	Select the task instance you want to cancel.
Step 2	Click **Cancel**. The task status changes to Cancelled.

Cancel a Task Instance from the Workflow Monitor

Step 1	Open the Workflow Monitor for the workflow that contains the task instance you want to cancel.
Step 2	Select the task instance.
Step 3	Select **Commands**.
Step 4	Select **Cancel**. The task status changes to Cancelled and the Workflow Console opens to display information about the cancellation.

Force Finishing a Task Instance

The Force Finish command puts a task instance into the Finished status, regardless of what the task instance is doing.

You can Force Finish a task instance while it is in any of the following statuses: Defined, Waiting, Held, Resource Wait, Queued, Action Required, Started, Running, Cancel Pending, In Doubt, Failure to Start, Cancelled, Failed.

If the task instance is part of a Workflow, you also can Force Finish the task instance if the task instance is re-run after the Workflow completes.

Although Force Finish sets the status of a task instance to Finished, the associated process (if any) will continue to run. For example, when force finishing a Windows task, the process will not be canceled by the agent and will continue to run until completion.

One purpose of Force Finish is to allow successor task instances in a workflow to launch without waiting for the current task instance to complete. You also may want to Force Finish a stand-alone task instance; for example, you may want to mark a failed job as Finished, rather than rerunning the job.

If a task instance is running when the user issues a Force Finish, the Controller marks the task instance as Finished even though the actual process continues running. Two exceptions are the Agent File Monitor and Remote File Monitor; for these task types, the monitoring processes are aborted by a Force Finish command. Assuming they have no other dependencies, all successor task instances waiting for successful completion of this task instance will start.

When you issue a Force Finish against a Workflow, the Workflow and any of its tasks that are not already in Success, Finished, or Skipped status will go to Finished status.

Two methods are available for Force Finishing a task instance:

- From the Activity Monitor or Task Instances list
- From the Workflow Monitor (if the task instance is running as part of a Workflow)

Force Finish a Task Instance from the Activity Monitor or Task Instances List

Step 1	Select the task instance you want to Force Finish.
Step 2	Click **Force Finish**. The task status changes to Finished.

Force Finish a Task Instance from the Workflow Monitor

Step 1	View the workflow that contains the task instance you want to Force Finish.
Step 2	Select the task instance.

Step 3	Select **Commands**.
Step 4	Select **Force Finish**. The task status changes to Finished and the Workflow Console opens to display information about the Force Finish.

Force Finishing (Halt) a Task Instance

Just as with the Force Finish command, the Force Finish (Halt) command puts a task instance into the Finished status, regardless of what the task instance is doing.

You can Force Finish (Halt) a task instance while it is in any of the following statuses: Defined, Waiting, Held, Resource Wait, Queued, Action Required, Started, Running, Cancel Pending, In Doubt, Failure to Start, Cancelled, Failed.

If the task instance is part of a Workflow, you also can Force Finish (Halt) the task instance if the task instance is re-run after the Workflow completes.

However, Force Finish (Halt) prevents successor task instances in a Workflow from being run. Those tasks will not run until you re-run the task against which you had executed Force Finish (Halt).

Although Force Finish sets the status of a task instance to Finished, the associated process (if any) will continue to run. For example, when force finishing a Windows task, the process will not be canceled by the agent and will continue to run until completion.

If a task instance is running when the user issues a Force Finish (Halt), the Controller marks the task instance as Finished even though the actual process continues running. Two exceptions are the Agent File Monitor and Remote File Monitor; for these task types, the monitoring processes are aborted by a Force Finish (Halt) command. All successor task instances waiting for successful completion of this task instance will remain in Waiting status.

Similarly, task monitors are not released if a Force Finish (Halt) is executed against a task being monitored.

Note

⚠

There are two areas in the user interface that you can check to determine if a task instance was forced finished with halt:

- Additional Information field in the Audit Details for that force finished task instance.
- Status Description field in the Task Instance Details for that force finished task instance.

Two methods are available for Force Finishing (Halt) a task instance:

- From the Activity Monitor
- From the Workflow Monitor (if the task instance is running as part of a Workflow)

Force Finish (Halt) a Task Instance from the Activity Monitor or Task Instances List

Step 1	Select the task instance you want to Force Finish (Halt).
Step 2	Click **Force Finish (Halt)**. The task status changes to Finished.

Force Finish (Halt) a Task Instance from the Workflow Monitor

Step 1	View the workflow that contains the task instance you want to Force Finish (Halt).
Step 2	Select the task instance.

Step 3	Select **Commands**.
Step 4	Select **Force Finish (Halt)**. The task status changes to Finished and the Workflow Console opens to display information about the Force Finish (Halt).

Force Finish/Cancelling a Task Instance

The Force Finish/Cancel command cancels a task instance and puts it into Finished status, regardless of what the task instance is doing.

You can Force Finish/Cancel a task instance while it is in any of the following statuses: Queued, Action Required, Started, Running.

If the task instance is part of a Workflow, you also can Force Finish/Cancel the task instance if the task instance is re-run after the Workflow completes.

Force Finish/Cancel sets the status of a task instance to Finished and cancels the associated process (if any).

One purpose of Force Finish/Cancel is to cancel a task instance and allow successor task instances in a Workflow to launch without waiting for that task instance to complete. You also may want to Force Finish /Cancel a stand-alone task instance; for example, you may want to mark a failed job as Finished, rather than rerunning the job.

Note

⚠ The Force Finish/Cancel command is not implemented for Timer tasks, since for this type of task, the Cancel and Force Finish commands essentially perform the same function.

For tasks that run on Agents, including Windows, Linux, Unix, z/OS, FTP, Agent File Monitor, and Universal Command tasks, the Force Finish/Cancel command is sent to the Agent.

- If the task instance has not yet been launched, it does not launch.
- If a task instance is running when the user issues a Force Finish/Cancel command, the Agent cancels the task instance, if possible, and then the Controller marks the task instance as Finished; processing does not continue. Assuming they have no other dependencies, all successor task instances waiting for successful completion of this task instance will start.
- If the task instance is a workflow, any eligible task instances in the workflow are cancelled and set to the Finished status, and then the workflow itself is set to the Finished status.

Two methods are available for Force Finish/Cancelling a task instance:

- From the Activity Monitor or Task Instances list
- From the Workflow Monitor (if the task instance is running as part of a Workflow)

Force Finish/Cancel a Task Instance from the Activity Monitor

Step 1	Select the task instance you want to Force Finish/Cancel.
Step 2	Click **Force Finish/Cancel**. The task status changes to Finished.

Force Finish/Cancel a Task Instance from the Workflow Monitor

Step 1	View the workflow that contains the task instance you want to Force Finish/Cancel.
Step 2	Select the task instance.
Step 3	Select **Commands**.
Step 4	Select **Force Finish/Cancel**. The task status changes to Finished and the Console opens to display information about the Force Finish/Cancel.

Force Finish/Cancelling (Halt) a Task Instance

Just as with the Force Finish/Cancel command, the Force Finish/Cancel (Halt) command cancels a task instance and puts it into Finished status, regardless of what the task instance is doing.

If the task instance is part of a Workflow, you also can Force Finish/Cancel (Halt) the task instance if the task instance is re-run after the Workflow completes.

Force Finish/Cancel sets the status of a task instance to Finished and cancels the associated process (if any).

However, Force Finish/Cancel (Halt) prevents successor task instances in a Workflow from being run. Those tasks will not run until you re-run the task against which you had executed Force Finish/Cancel (Halt).

Task monitors are not released if a Force Finish/Cancel (Halt) is executed against a task being monitored.

You can Force Finish/Cancel (Halt) a task instance while it is in any of the following statuses: Queued, Action Required, Started, Running.

Note

The Force Finish/Cancel (Halt) command is not implemented for Timer tasks, since for this type of task, the Cancel and Force Finish commands essentially perform the same function.

For tasks that run on Agents, including Windows, Linux, Unix, z/OS, FTP, Agent File Monitor, and Universal Command tasks, the Force Finish/Cancel (Halt) command is sent to the Agent.

- If the task instance has not yet been launched, it does not launch.
- If a task instance is running when the user issues a Force Finish/Cancel (Halt) command, the Agent cancels the task instance, if possible, and then the Controller marks the task instance as Finished; processing does not continue. All successor task instances waiting for successful completion of this task instance remain in Waiting status.
- If the task instance is a workflow, any eligible task instances in the workflow are cancelled and set to the Finished status, and then the workflow itself is set to the Finished status.

Note

There are two areas in the user interface that you can check to determine if a task instance was forced finish / cancelled with halt:

- Additional Information field in the Audit Details for that force finish / cancelled task instance.
- Status Description field in the Task Instance Details for that force finish / cancelled task instance.

Two methods are available for Force Finish/Cancelling (Halt) a task instance:

- From the Activity Monitor
- From the Workflow Monitor (if the task instance is running as part of a Workflow)

Force Finish/Cancel (Halt) a Task Instance from the Activity Monitor

Step 1	Select the task instance you want to Force Finish/Cancel (Halt).
Step 2	Click **Force Finish/Cancel (Halt)**. The task status changes to Finished.

Force Finish/Cancel (Halt) a Task Instance from the Workflow Monitor

Step 1	View the workflow that contains the task instance you want to Force Finish/Cancel (Halt).
Step 2	Select the task instance.

Step 3	Select **Commands**.
Step 4	Select **Force Finish/Cancel (Halt)**. The task status changes to Finished and the Console opens to display information about the Force Finish/Cancel (Halt).

Putting a Task Instance on Hold

If you put a Workflow on hold that has not yet started, the Workflow and all the task instances in it are put on hold.

If you put a Workflow on hold when it is in Running status, all the task instances within the Workflow that have not yet started are put on hold; however, the Workflow itself does not go to Hold status because it already has started.

To release the Workflow and all of its task instances that are on hold, issue the Release Recursive command against the Workflow.

To release the Workflow but keep the task instances on hold until you release them one by one, use Release on the Workflow first, then use Release on each task instance.

You can put a task instance on hold while it is in any of the following statuses: Defined, Waiting, Resource Wait, Queued.

Two methods are available for putting a task instance on hold:

- From the Activity Monitor or Task Instances list
- From the Workflow Monitor (if the task instance is running as part of a Workflow)

Hold a Task Instance from the Activity Monitor or Task Instances List

Step 1	Select the task instance you want to put on hold.
Step 2	Click **Hold**. The task status changes to Held.

Hold a Task Instance from the Workflow Monitor

Step 1	View the workflow that contains the task instance you want to put on hold.
Step 2	Select the task instance.
Step 3	Select **Commands**.
Step 4	Select **Hold**. The task status changes to Held and the Workflow Console opens to display information about the hold.

Releasing a Task Instance from Hold

For Workflows, if the user held a Workflow that already was running, only the task instances within the Workflow that had not started yet are put into Held status. In this case, the Workflow itself does not go to Held status.

You can release a non-Workflow task instance from hold from the Activity Monitor or Task Instances list while it is in the following status: Held.

To release the Workflow, use one of the following commands:

- To release the entire held Workflow and its task instances, use **Release Recursive**.
- To release a Workflow that is not in Held status but has task instances that are in Held status, use **Release Recursive**. In this case, you can issue **Release Recursive** on a Workflow in any of the following statuses: Defined, Waiting, Held, Resource Wait, Running.
- To release the Workflow but keep the task instances inside on hold so that you can release them one by one, use **Release**. In this case, release the Workflow first, then release each task instance manually.

Two methods are available for releasing a task instance from hold:

- From the Activity Monitor or Task Instances list
- From the Workflow Monitor (if the task instance is running as part of a Workflow)

Release a Held Task Instance from the Activity Monitor or Task Instances List

Step 1	Select the task instance you want to release from hold.
Step 2	Click **Release** or **Release Recursive**. The task status changes to the next appropriate status according to where it was in processing at the time it was put on hold.

Release a Held Task Instance from the Workflow Monitor

Step 1	View the Workflow that contains the task instance you want to release.
Step 2	Select the task instance.
Step 3	Select **Commands**.
Step 4	Select **Release**. The task status changes to the next appropriate status according to where it was in processing, and the Workflow Console opens to display information about the release.

Skipping a Task Instance

You can skip a task instance or a task instance path so that the task instance and all of its dependent task instances automatically are skipped as well.

You can skip any task instance as long as it has not yet started running; that is, while it is in any of the following statuses: Defined, Waiting, Held, Resource Requested, Resource Wait.

Two methods are available for skipping a task instance:

- From the Activity Monitor or Task Instances list
- From the Workflow Monitor (if the task instance is running as part of a Workflow)

Note

You also can specify that a task instance will be skipped (before the task or its Workflow is launched) by:

1. Modifying a trigger Details (using the trigger's Skip Count field) so that the Controller skips the next N number of trigger occurrences for launching the task.
2. Modifying a Workflow Details by specifying conditional paths that may place one or more task instances in the Skipped status when the workflow is run.
3. Modifying a Workflow Details by specifying that one or more task instances should be skipped (or run) at specific times (see Adding Skip/Run Criteria for Specific Tasks).

If you skip a Workflow task instance, all the task instances within the Workflow also are skipped, along with any nested Workflows.

Once a task instance has been skipped, the only command you can run against it is Unskip.

Skip a Task Instance from the Activity Monitor or Task Instances List

Step 1	Select the task instance you want to skip.
Step 2	Click **Skip**. The task status changes to Skipped.
Step 3	To skip the task instance and all of its dependent task instances, click **Skip Path**. The task status of the task instance and all of its dependent task instances changes to Skipped.

Skip a Task Instance from the Workflow Monitor

Step 1	View the Workflow that contains the task instance you want to skip.
Step 2	Select the task instance.
Step 3	Select **Commands**.
Step 4	Select **Skip**. The task status changes to Skipped, and the Console opens to display information about the skip.
Step 5	To skip the task instance and all of its dependent task instances, click **Skip Path**. The task status of the task instance and all of its dependent task instances changes to Skipped, and the Console opens to display information about the skip.

Showing or Hiding Skipped Task Instances

You can select whether to show or hide skipped task instances on the Workflow Monitor either:

- Before the Workflow is running
- While the Workflow is running

Three methods are available for selecting whether or not to show or hide skipped task instances:

- From the Workflow Task Details
- From the Workflow Task Instance Details
- From the Workflow Monitor

Setting Show / Hide Skipped Tasks from the Workflow Task Details

Step 1	Display the Workflow Task Details for the Workflow that you want to show/hide Skipped task instances.
Step 2	Use the Show / Hide Skipped Tasks field to select whether you want to show or hide skipped task instances (default is Show Skipped). When viewing a running Workflow in the Workflow Monitor, the skipped task instances will be shown or hidden based on your selection.

Setting Show / Hide Skipped Tasks from the Workflow Task Instance Details

Step 1	Display the Workflow Task Instance Details for the Workflow task instance that you want to show/hide Skipped task instances.

Step 2	Use the Show / Hide Skipped Tasks field to select whether you want to show or hide skipped task instances (default is Show Skipped). When viewing the Workflow instance in the Workflow Monitor, the skipped task instances will be shown or hidden based on your selection.

Setting Show / Hide Skipped Tasks from the Workflow Monitor

Open the Workflow task instance in the Workflow Monitor. By default, the Workflow Monitor will show or hide skipped task instances based on the Workflow task instance's Show / Hide Skipped Tasks option.

To temporarily change the behavior, right-click in the Workflow Monitor canvas and select either of the following entries from the pop-up menu:

- Show Skipped / Restore
- Hide Skipped

Unskipping a Task Instance

If a task instance in a Workflow has been skipped (perhaps at trigger time due to run criteria or manually by running the skip command), you can unskip that task instance while the Workflow is running.

Note

If you unskip a task instance that was skipped by issuing a Skip Path command against it, which automatically skip all of its dependent tasks, those dependent tasks stay in Skipped status. You must manually unskip each task to remove them from Skipped status.

Two methods are available for unskipping a task instance:

1. From the Activity Monitor or Task Instances list
2. From the Workflow Monitor

Unskip a Task Instance from the Activity Monitor or Task Instances List

Step 1	Select the task instance you want to unskip.
Step 2	Click **Unskip**. The task instance will run when all of its dependencies have been satisfied.

Unskip a Task Instance from the Workflow Monitor

Step 1	View the Workflow that contains the task instance(s) you want to unskip.
Step 2	Select a task instance. (You can issue commands only against one task at a time within the Workflow Monitor.)
Step 3	Select **Commands**.
Step 4	Select **Unskip**. A confirmation message will appear in the Console, and the task instance will run when all of its dependencies have been satisfied.

Marking a Dependency as Satisfied

For task instances running inside of a Workflow, you can mark a single predecessor dependency as satisfied to allow the task instance to run.

Marking a dependency as satisfied has the same result as clearing a dependency.

You can mark a dependency as satisfied on task instances in the following status: Defined, Waiting, Held.

One method is available for marking a dependency as satisfied:

- From the Workflow Monitor

Marking a Dependency as Satisfied from the Workflow Monitor

Step 1	View the Workflow that contains the task instance whose dependencies you want to satisfy.
Step 2	Locate and right-click on the task dependency (the connector line between two tasks).
Step 3	Select **Commands**.
Step 4	Select **Mark as Satisfied**. If all other dependencies are satisfied, the task instance is launched normally.

Clearing Predecessor Dependencies of a Task Instance

For a task instance running inside of a Workflow, you can clear all predecessor dependencies to allow that task instance to run. Clearing a predecessor dependency has the same result as satisfying a predecessor dependency.

You can clear predecessor dependencies of a task instance while it is in any of the following statuses: Defined, Waiting, Held.

Note

⚠ Clearing predecessor dependencies does not include the clearing of resource and mutually exclusive dependencies. To clear these dependencies, see Clearing Resource Dependencies of a Task Instance and Clearing Mutually Exclusive Dependencies of a Task Instance, below. To clear all dependencies, see Clearing All Dependencies of a Task Instance, below.

One method is available for clearing predecessor dependencies of a task instance:

- From the Workflow Monitor

Clearing Predecessor Dependencies of a Task Instance from the Workflow Monitor

Step 1	View the Workflow that contains the task instance whose predecessor dependencies you want to satisfy.
Step 2	Select the task instance for which you want to clear predecessor dependencies.
Step 3	Select **Commands**.
Step 4	Select **Clear Predecessors**. The task instance is launched normally.

Clearing Resource Dependencies of a Task Instance

For task instances for which resources have been defined, you can clear those resource dependencies.

You can clear resource dependencies of task instances while it is in the following status: Resource Wait.

Two methods are available for clearing resource dependencies from task instances:

1. From the Activity Monitor or Task Instances list
2. From the Workflow Monitor

Clear Resource Dependencies of a Task Instance from the Activity Monitor or Task Instances List

Step 1	Select the task instance whose resources you want to clear.
Step 2	Click **Clear Resources**. Resource dependencies are cleared from the task instance.

Clear Resource Dependencies of a Task Instance from the Workflow Monitor

Step 1	View the Workflow that contains the task instance(s) you want to clear of resource dependencies.
Step 2	Select a task instance. (You can issue commands only against one task at a time within the Workflow Monitor.)
Step 3	Select **Commands**.
Step 4	Select **Clear Resources**. A confirmation message will appear in the Console, and the task instance will run without resources.

Clearing Mutually Exclusive Dependencies of a Task Instance

For task instances that are mutually exclusive with other task instances, you can clear those mutually exclusive dependencies.

Any task instances that were mutually exclusive with this task instance will no longer be mutually exclusive.

You can clear mutually exclusive dependencies of a task instance while it is in the following status: Exclusive Wait.

Two methods are available for clearing mutually exclusive dependencies from task instances:

1. From the Activity Monitor or Task Instances list
2. From the Workflow Monitor

Clear Mutually Exclusive Dependencies of a Task Instance from the Activity Monitor or Task Instances List

Step 1	Select the task instance whose mutually exclusive dependencies you want to clear.
Step 2	Click **Clear Exclusive**. Mutually exclusive dependencies of the task instance are cleared, and the task instance is launched normally.

Clear Mutually Exclusive Dependencies of a Task Instance from the Workflow Monitor

Step 1	View the Workflow that contains the task instance you want to clear of mutually exclusive dependencies.
Step 2	Select a task instance. (You can issue commands only against one task at a time within the Workflow Monitor.)
Step 3	Select **Commands**.
Step 4	Select **Clear Exclusive**. A confirmation message will appear in the Console, and the task instance will run normally.

Clearing All Dependencies of a Task Instance

You can clear all dependencies (time wait/delay, predecessors, resources, and exclusive) to allow a task instance to run.

You can clear all dependencies of a task instance while it is in any the following status: Defined, Waiting, Held, Exclusive Requested, Exclusive Wait, Resource Requested, Resource Wait.

Three methods are available for clearing all dependencies of a task instance:

1. From the Activity Monitor or Task Instances list
2. From the Workflow Monitor (for a task instance within the Workflow)
3. From the Workflow Monitor (for the Workflow itself)

If you issue a Clear All Dependencies command against a Workflow task instance, all dependencies of only the Workflow task instance are cleared, not the dependencies of any of its task instances.

Clear All Dependencies of a Task Instance from the Activity Monitor or Task Instances List

Step 1	Select the task instance whose dependencies you want to clear.
Step 2	Click **Clear All Dependencies**. All dependencies are cleared from the task instance and it is launched normally.

Clear All Dependencies of a Task Instance within a Workflow from the Workflow Monitor

Step 1	View the Workflow that contains the task instance whose dependencies you want to clear.
Step 2	Select the task instance for which you want to clear predecessor dependencies.
Step 3	Select **Commands > Clear All Dependencies**. All dependencies are cleared from the task instance and it is launched normally.

Clear All Dependencies of a Workflow Task Instance from the Workflow Monitor

Step 1	View the Workflow whose dependencies you want to clear.
Step 2	Right-click the Workflow Monitor canvas to display a menu of available actions.
Step 3	Select **Commands > Clear All Dependencies**. All dependencies are cleared from the Workflow.

Clearing Time Wait/Delay Specifications of a Task Instance

You can clear all Wait To Start and Delay On Start specifications of a task instance to allow a task instance to run without waiting.

You can clear all Wait To Start and Delay On Start specifications of a task instance while it is in any the following status: Defined, Waiting, Time Wait, Held.

Three methods are available for clearing Time Wait/Delay specifications of task instances:

1. From the Activity Monitor or Task Instances list
2. From the Workflow Monitor
3. From the task instance Details

Clear All Time Wait/Delay Specifications of a Task Instance from the Activity Monitor or Task Instances List

Step 1	Select the task instance whose Time Wait/Delay specifications you want to clear.
Step 2	Click **Clear Time Wait/Delay**. The task instance is launched normally.

Clear All Time Wait/Delay Specifications of a Task Instance from the Workflow Monitor

Step 1	View the Workflow that contains the task instance whose Time Wait/Delay specifications you want to clear.
Step 2	Select the task instance for which you want to clear Time Wait/Delay specifications.
Step 3	Select **Commands**.
Step 4	Select **Clear Time Wait/Delay**. The task instance is launched normally.

Clear All Time Wait/Delay Specifications of a Task Instance from the Task Instance Details

Step 1	Open the Task Instance Details for the task instance that you want to clear Time Wait/Delay specifications.
Step 2	Right-click in the task instance Details and select Clear > Clear Time Wait/Delay.

Monitoring Task Activity

Universal Controller lets you perform the following actions related to the monitoring of tasks and Workflows:

- Monitoring Activity from the Activity Monitor
- Monitoring Activity from the Task Instances List
- Monitoring Activity History
- Monitoring Workflows
- Viewing Task Instances for a Specific Task
- Displaying Task Instance Status
- Retrieving Output

Monitoring Activity from the Activity Monitor

- Overview
- Accessing the Activity Monitor
- Activity Monitor Column Descriptions
- Activity Monitor Task Bar
    - Time Constraint
    - Quick Filter
    - Custom Filter
    - Refresh
- Activity Monitor Display Task Bar
    - Settings
    - Start and Stop Activity Monitor
    - Page Navigation Buttons
    - Page Numbers
- Displaying Task Instance Details
- Issuing Commands Against Task Instances

Overview

The Activity Monitor is the Universal Controller central console of activity, a real-time display of task instance status. It displays a list of task instances contained in the Universal Controller All Task Instances table (`ops_exec`), as controlled by your selections in the Activity Monitor Selections task bar at the top of the list.

A task bar below the list allows you to control displays settings for the selected task instances.

A task instance is the "run" version of a task. Each time a task runs, the Controller creates a task instance and monitors its activity on the Activity Monitor. Each task instance is a separate record.

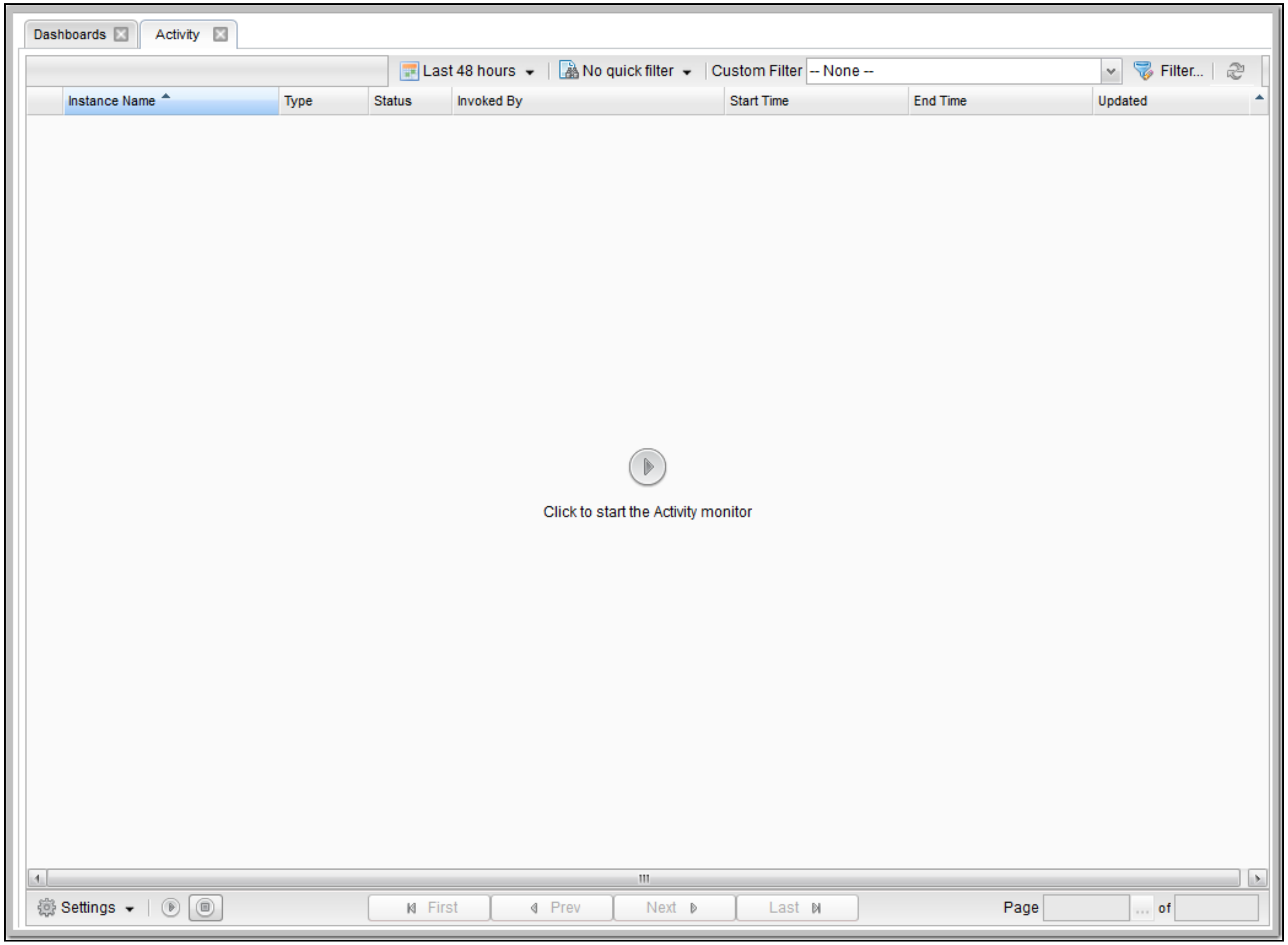
The Activity Monitor allows you to issue commands against task instances. You can also issue commands from the Task Instances list (and the Task Instances list for a specific task). In cases where the task Details did not instruct the Controller to retrieve output automatically, you can retrieve output manually from any completed task.

Accessing the Activity Monitor

From the Automation Center navigation pane, select **Task Instances > Activity**. The Activity Monitor displays task status information based on the settings in the Activity Monitor Selections Task Bar.

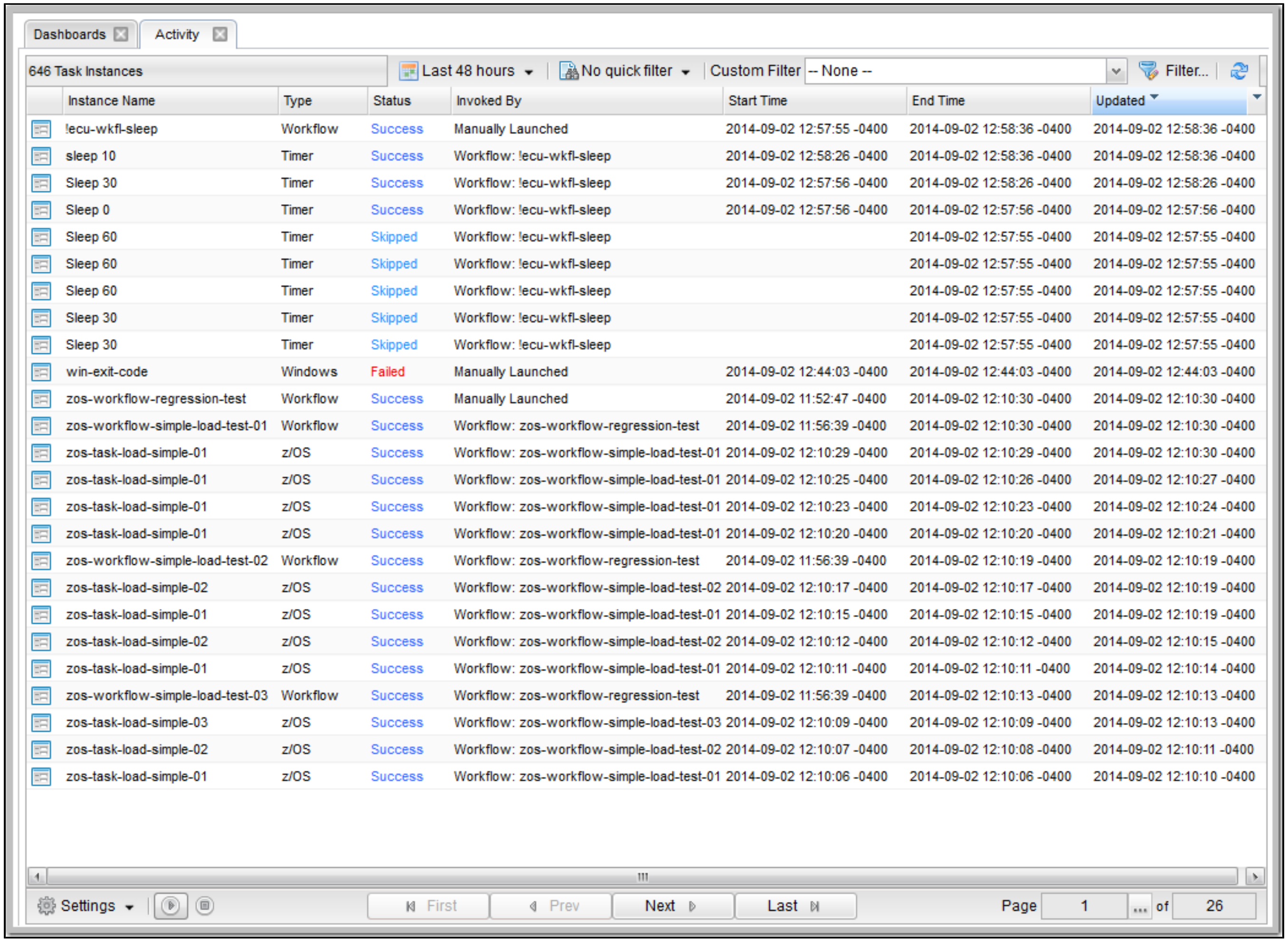
When you first log in to the Controller, the Activity Monitor does not automatically monitor Controller activity, since the Activity Monitor Automatically user preference value, by default, is set to **No**. You can change this value at any time.

The following is a sample Activity Monitor that is not monitoring activity.


Dashboards
Activity
Last 48 hours
No quick filter
Custom Filter
-- None --
Filter...
Instance Name
Type
Status
Invoked By
Start Time
End Time
Updated
Click to start the Activity monitor
Settings
First
Prev
Next
Last
Page
of

You can manually start the Activity Monitor at any time by clicking the Start button in the center of the screen. You also can manually start or stop the Activity Monitor at any time from the Activity Monitor Display task bar. However, on your next login to the Controller, the Activity Monitor Automatically value will determine whether or not the Activity Monitor automatically starts monitoring the Controller.

The following is a sample Activity Monitor that is monitoring activity.



Instance Name	Type	Status	Invoked By	Start Time	End Time	Updated
!ecu-wkfl-sleep	Workflow	Success	Manually Launched	2014-09-02 12:57:55 -0400	2014-09-02 12:58:36 -0400	2014-09-02 12:58:36 -0400
sleep 10	Timer	Success	Workflow: !ecu-wkfl-sleep	2014-09-02 12:58:26 -0400	2014-09-02 12:58:36 -0400	2014-09-02 12:58:36 -0400
Sleep 30	Timer	Success	Workflow: !ecu-wkfl-sleep	2014-09-02 12:57:56 -0400	2014-09-02 12:58:26 -0400	2014-09-02 12:58:26 -0400
Sleep 0	Timer	Success	Workflow: !ecu-wkfl-sleep	2014-09-02 12:57:56 -0400	2014-09-02 12:57:56 -0400	2014-09-02 12:57:56 -0400
Sleep 60	Timer	Skipped	Workflow: !ecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 60	Timer	Skipped	Workflow: !ecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 60	Timer	Skipped	Workflow: !ecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 30	Timer	Skipped	Workflow: !ecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 30	Timer	Skipped	Workflow: !ecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
win-exit-code	Windows	Failed	Manually Launched	2014-09-02 12:44:03 -0400	2014-09-02 12:44:03 -0400	2014-09-02 12:44:03 -0400
zos-workflow-regression-test	Workflow	Success	Manually Launched	2014-09-02 11:52:47 -0400	2014-09-02 12:10:30 -0400	2014-09-02 12:10:30 -0400
zos-workflow-simple-load-test-01	Workflow	Success	Workflow: zos-workflow-regression-test	2014-09-02 11:56:39 -0400	2014-09-02 12:10:30 -0400	2014-09-02 12:10:30 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:29 -0400	2014-09-02 12:10:29 -0400	2014-09-02 12:10:30 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:25 -0400	2014-09-02 12:10:26 -0400	2014-09-02 12:10:27 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:23 -0400	2014-09-02 12:10:23 -0400	2014-09-02 12:10:24 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:20 -0400	2014-09-02 12:10:20 -0400	2014-09-02 12:10:21 -0400
zos-workflow-simple-load-test-02	Workflow	Success	Workflow: zos-workflow-regression-test	2014-09-02 11:56:39 -0400	2014-09-02 12:10:19 -0400	2014-09-02 12:10:19 -0400
zos-task-load-simple-02	z/OS	Success	Workflow: zos-workflow-simple-load-test-02	2014-09-02 12:10:17 -0400	2014-09-02 12:10:17 -0400	2014-09-02 12:10:19 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:15 -0400	2014-09-02 12:10:15 -0400	2014-09-02 12:10:19 -0400
zos-task-load-simple-02	z/OS	Success	Workflow: zos-workflow-simple-load-test-02	2014-09-02 12:10:12 -0400	2014-09-02 12:10:12 -0400	2014-09-02 12:10:15 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:11 -0400	2014-09-02 12:10:11 -0400	2014-09-02 12:10:14 -0400
zos-workflow-simple-load-test-03	Workflow	Success	Workflow: zos-workflow-regression-test	2014-09-02 11:56:39 -0400	2014-09-02 12:10:13 -0400	2014-09-02 12:10:13 -0400
zos-task-load-simple-03	z/OS	Success	Workflow: zos-workflow-simple-load-test-03	2014-09-02 12:10:09 -0400	2014-09-02 12:10:09 -0400	2014-09-02 12:10:13 -0400
zos-task-load-simple-02	z/OS	Success	Workflow: zos-workflow-simple-load-test-02	2014-09-02 12:10:07 -0400	2014-09-02 12:10:08 -0400	2014-09-02 12:10:11 -0400
zos-task-load-simple-01	z/OS	Success	Workflow: zos-workflow-simple-load-test-01	2014-09-02 12:10:06 -0400	2014-09-02 12:10:06 -0400	2014-09-02 12:10:10 -0400

Note

Once you have displayed the Activity Monitor, it remains open throughout your Controller session unless you manually close it by clicking the **x** icon in the Activity Monitor tab at the top of the page. (The same is true for the Dashboards.)

If you click a page in the Navigator while viewing the Activity Monitor or Dashboards, a new tab for that page will open. The Activity Monitor and Dashboards tabs remain at the top of the screen if you navigate from them, providing for a quick return to those pages.

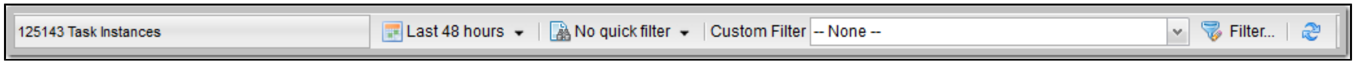
Activity Monitor Column Descriptions

The following table describes the default columns of information displayed on the Activity Monitor.

Column Name	Description
Instance Name	Name of this task instance.
Type	Type of task instance.
Status	Current status of this task instance.
Invoked By	How the task instance was launched. One of the following: • Trigger: (Trigger Name) - The instance was launched by the named trigger. • Workflow: (Workflow Name) - The instance was launched by the named workflow. • Manually Launched - The instance was launched by a user. To determine the name of the user: 1. From the Activity or Task Instances screen, click the task instance name to open the record. 2. The Execution User field identifies the user who launched the task instance.
Start Time	Date and time the task instance started.
End Time	Date and time the task instance ended.
Updated	Date and time that this task instance was last updated.

Activity Monitor Task Bar

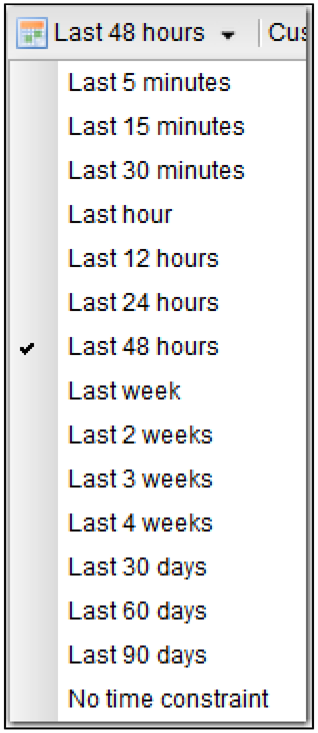
An Activity Monitor task bar displays across the top of the Activity Monitor, which allows you to select which task instances display on the Activity Monitor.



Time Constraint

The Time Constraint drop-down list in the Activity Monitor Selections task bar allows you to select a time frame for which you want task instances to display on the Activity Monitor.

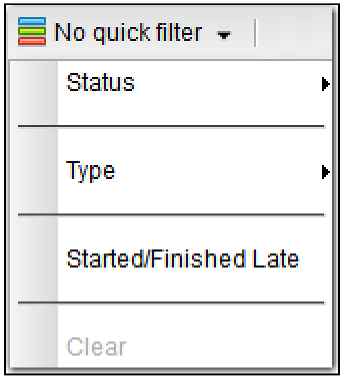
The default time constraint, as specified by the Activity Time Constraint user preference, is 48 hours.


Last 48 hours
Cus
Last 5 minutes
Last 15 minutes
Last 30 minutes
Last hour
Last 12 hours
Last 24 hours
✓ Last 48 hours
Last week
Last 2 weeks
Last 3 weeks
Last 4 weeks
Last 30 days
Last 60 days
Last 90 days
No time constraint

Quick Filter

The Quick Filter menu in the Activity Monitor Selections task bar allows you to filter the list with simple, pre-defined criteria so that only task instances matching that criteria within the selected Time Constraint and any selected Custom Filter display on the Activity Monitor.

To display the Quick Filter menu, click the Quick Filter button on the task bar which, by default, is identified as **No quick filter**.



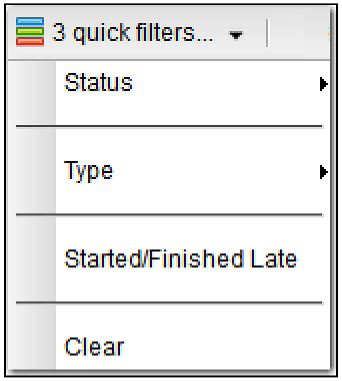
The Quick Filter menu allows you to select any combination of the following filters to the list:

- Status: Individual task instance status and the following composite statuses:
  - Active = All task instance statuses except Skipped (180), Finished (190), Success (200).
  - Blocked = Waiting (10), Held (20), Exclusive Wait (23), Resource Wait (30), Execution Wait (33), and Action Required (60) task instance statuses.
  - Completed = Skipped (180), Finished (190), and Success (200) task instance statuses.
  - Problem = Undeliverable (35), Running/Problems (81), Cancel Pending (99), In Doubt (110), Start Failure (120), Confirmation Required (125), Cancelled (130), and Failed (140) task instance statuses.
- Type: Individual task type.
- Started/Finished Late: Task instance started and/or finish late according to the Start / Finish Late times specified in the task Details.
- Clear = Clears all Quick Filters from the list. (You can clear individual Quick Filters by deselecting them on the menu.)

Note

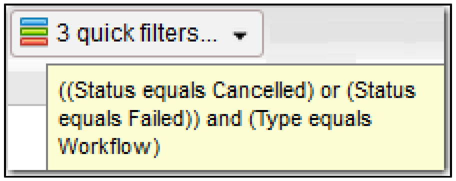
⚠ You can change the names of the composite statuses Quick Filters (Active, Blocked, Completed, and Problem), and the task instance statuses included in each one, by editing the System Default Activity Quick Filters Universal Controller system property.

You must select each Quick Filter individually; you cannot use Ctrl-click to select multiple Quick Filters. The Quick Filter button provides a count of how many Quick Filters have been applied to the list. For example, the following Quick Filter button shows that three separate quick filters have been applied.



The **Clear** button now is enabled, allowing you to remove all Quick Filters from the list in one click.

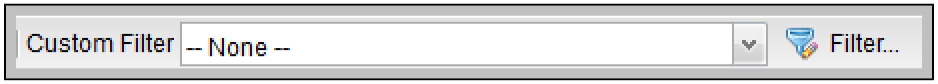
To see which Quick Filters have been applied to the list, hover your cursor over the Quick Filter button.



((Status equals Cancelled) or (Status equals Failed)) and (Type equals Workflow)

Custom Filter

The **Custom Filter** field and **Filter...** button in the Activity Monitor Selections task bar allows you to filter the list with complex, user-defined criteria so that only task instances matching that specified criteria within the selected Time Constraint and any selected Quick Filter display on the Activity Monitor.



Custom Filter -- None --

See Filters for detailed information an applying and saving filters.

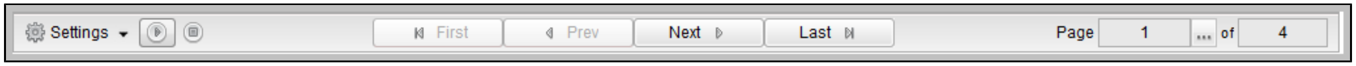
Refresh

The **Refresh** button enables you to perform a manual refresh of the information displayed on the Activity Monitor.

When you click the Refresh button, the button is disabled (the icon turns grey) until the refresh is complete. The Refresh button also is disabled if the Activity Monitor has not been started and is not monitoring activity.

Activity Monitor Display Task Bar

An Activity Monitor Display task bar displays across the bottom of the Activity Monitor, which allows you to select which task instances on the Activity Monitor to view and how often the data for those task instances is refreshed.


Settings
First
Prev
Next
Last
Page
1
...
of
4

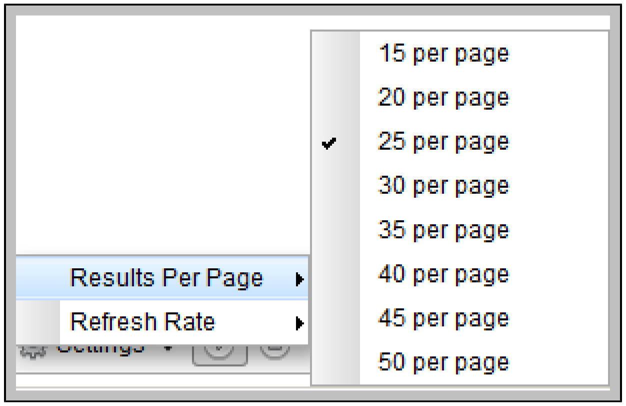
Settings

The Settings drop-down list provides the following selections:

- Results Per Page
- Refresh Rate

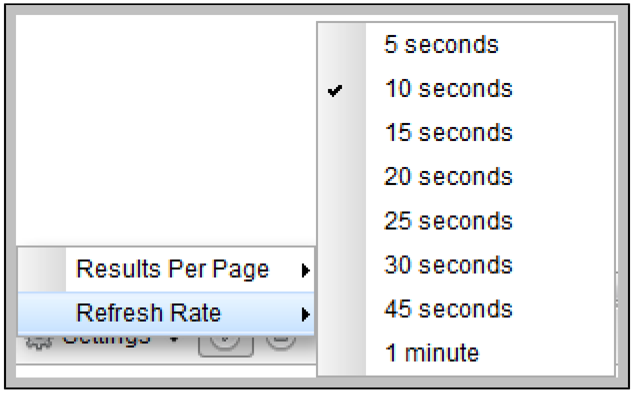
Results Per Page

Hover your cursor **Results Per Page** on the Settings drop-down list to select the number of task instances to be displayed on a page (default is 25).


Results Per Page
Refresh Rate
15 per page
20 per page
✓ 25 per page
30 per page
35 per page
40 per page
45 per page
50 per page

Refresh Rate

Hover tour cursor over **Refresh Rate** on the Settings drop-down list to select a refresh rate for the data displayed on the Activity Monitor (default is 10 seconds).



Start and Stop Activity Monitor

Start and Stop buttons on the Activity Monitor allow you to start and stop the monitoring of activity on the Controller.

The Activity Monitor Automatically value specifies whether or not the Activity Monitor automatically is monitoring Controller activity.

You can override that value by electing either of the following, as appropriate:

▶	Starts monitoring Controller activity. The Activity Monitor displays task instances according to the current Time Constraint setting and any applied Filters.
■	Stops monitoring Controller activity. All task instances are removed from the Activity Monitor display.

Page Navigation Buttons

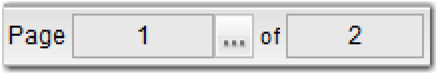
Page navigation buttons allow you to scroll through the pages of task instances that are displayed according to the current Activity Monitor settings.

First	Displays the first page of the list.
Prev	Displays the previous page of the list.
Next	Displays the next page of the list.
Last	Displays the last page of the list.

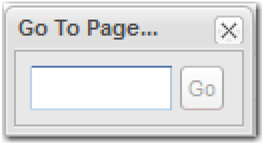
Note
⚠
You also can specify a specific page number to go to (see Page Numbering, below).

Page Numbers

Page Numbers buttons in the task bar identify the number of the currently displayed page and the total number of pages.



You can go to a specific page number by clicking the ellipse (**...**) icon that displays after the current page number. A Go To Page pop-up displays.



Enter a page number and click the **Go** button to navigate to that page.

Displaying Task Instance Details

To display Details for a specific task instance displayed on the Activity Monitor, click the **Details** icon next to the **Instance Name** of that task instance.

From the task Instance Details, you can also display additional Details about the task instance:

Show Metadata	Displays Metadata for the task instance, including a status history.
Show Details	Displays complete database details for the task instance.
Show Variables	Displays a list of all variables available to the task instance, including any variables inherited from the parent or embedded (sub-Workflow) Workflow of the task instance.

Issuing Commands Against Task Instances

Where applicable, you can manually intervene in processing by issuing a command against one or more task instances.

For information about the commands available for each type of task, see Supported Commands.

Monitoring Activity from the Task Instances List

- Overview
- Displaying the Task Instances List
    - Task Instances List Column Descriptions
- Task Instances List Task Bar
    - Time Constraint
    - Filtering
- Displaying Task Instance Details
- Issuing Commands Against Task Instances

Overview

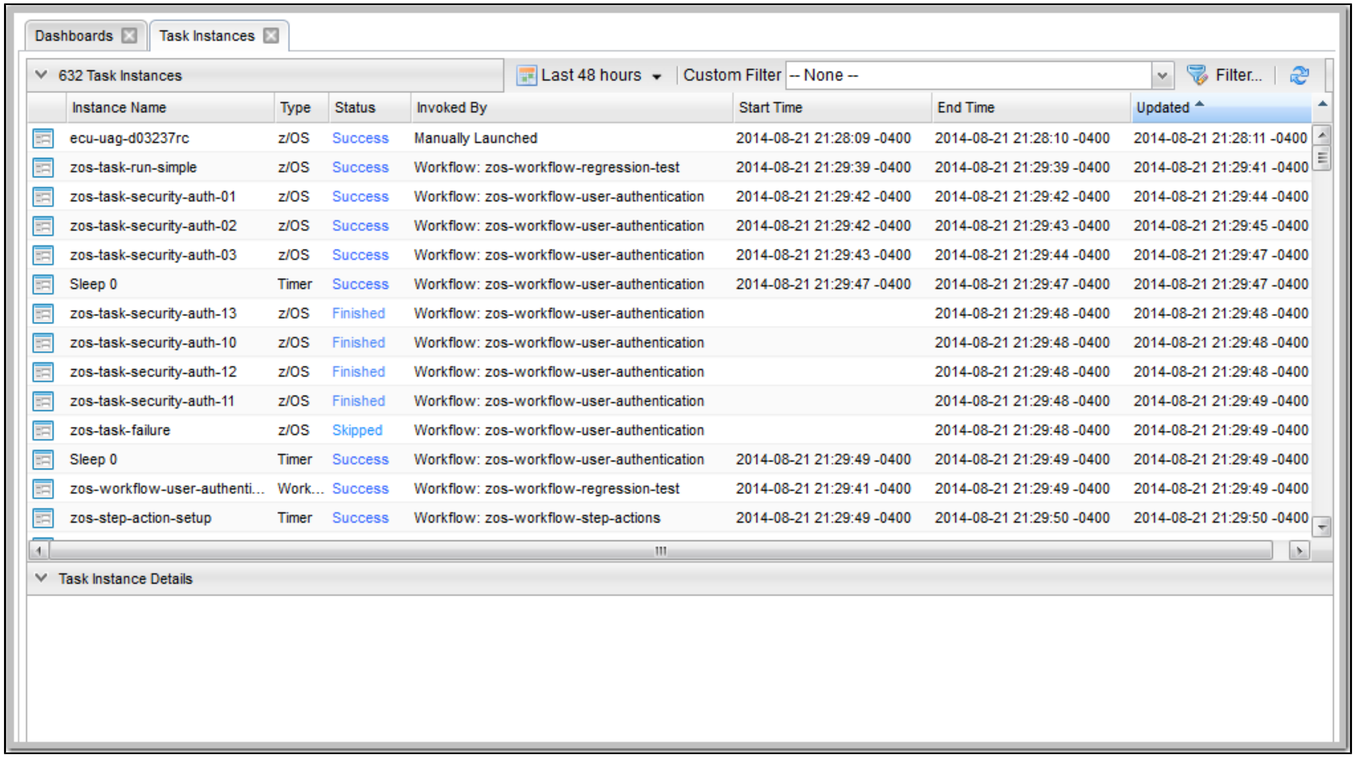
The Task Instances list displays the same task instance information as the Activity Monitor, but only for task instances for which there has been a status change or a modification to the task instance record.

Also, unlike the Activity Monitor, the Task Instances list is not automatically refreshed.

You also can monitor activity for a specific task by displaying task-specific Task Instances Details.

Displaying the Task Instances List

From the Automation Center navigation pane, select **Task Instances > All Task Instances**. The Task Instances list displays.



Last 48 hours

Custom Filter -- None --

Instance Name	Type	Status	Invoked By	Start Time	End Time	Updated
ecu-uag-d03237rc	z/OS	Success	Manually Launched	2014-08-21 21:28:09 -0400	2014-08-21 21:28:10 -0400	2014-08-21 21:28:11 -0400
zos-task-run-simple	z/OS	Success	Workflow: zos-workflow-regression-test	2014-08-21 21:29:39 -0400	2014-08-21 21:29:39 -0400	2014-08-21 21:29:41 -0400
zos-task-security-auth-01	z/OS	Success	Workflow: zos-workflow-user-authentication	2014-08-21 21:29:42 -0400	2014-08-21 21:29:42 -0400	2014-08-21 21:29:44 -0400
zos-task-security-auth-02	z/OS	Success	Workflow: zos-workflow-user-authentication	2014-08-21 21:29:42 -0400	2014-08-21 21:29:43 -0400	2014-08-21 21:29:45 -0400
zos-task-security-auth-03	z/OS	Success	Workflow: zos-workflow-user-authentication	2014-08-21 21:29:43 -0400	2014-08-21 21:29:44 -0400	2014-08-21 21:29:47 -0400
Sleep 0	Timer	Success	Workflow: zos-workflow-user-authentication	2014-08-21 21:29:47 -0400	2014-08-21 21:29:47 -0400	2014-08-21 21:29:47 -0400
zos-task-security-auth-13	z/OS	Finished	Workflow: zos-workflow-user-authentication		2014-08-21 21:29:48 -0400	2014-08-21 21:29:48 -0400
zos-task-security-auth-10	z/OS	Finished	Workflow: zos-workflow-user-authentication		2014-08-21 21:29:48 -0400	2014-08-21 21:29:48 -0400
zos-task-security-auth-12	z/OS	Finished	Workflow: zos-workflow-user-authentication		2014-08-21 21:29:48 -0400	2014-08-21 21:29:48 -0400
zos-task-security-auth-11	z/OS	Finished	Workflow: zos-workflow-user-authentication		2014-08-21 21:29:48 -0400	2014-08-21 21:29:49 -0400
zos-task-failure	z/OS	Skipped	Workflow: zos-workflow-user-authentication		2014-08-21 21:29:48 -0400	2014-08-21 21:29:49 -0400
Sleep 0	Timer	Success	Workflow: zos-workflow-user-authentication	2014-08-21 21:29:49 -0400	2014-08-21 21:29:49 -0400	2014-08-21 21:29:49 -0400
zos-workflow-user-authenti...	Work...	Success	Workflow: zos-workflow-regression-test	2014-08-21 21:29:41 -0400	2014-08-21 21:29:49 -0400	2014-08-21 21:29:49 -0400
zos-step-action-setup	Timer	Success	Workflow: zos-workflow-step-actions	2014-08-21 21:29:49 -0400	2014-08-21 21:29:50 -0400	2014-08-21 21:29:50 -0400

Task Instances List Column Descriptions

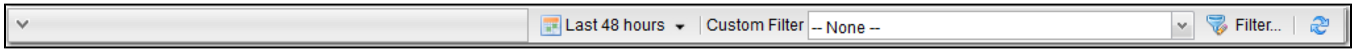
The following table describes the default columns of information displayed on the Task Instances list.

Column	Description
Instance Name	Name of this task instance.
Invoked By	System-supplied; how the task instance was launched. One of the following: • Trigger: (Trigger Name) - The instance was launched by the named trigger. • Workflow: (Workflow Name) - The instance was launched by the named workflow. • Manually Launched - The instance was launched by a user. To determine the name of the user: 1. From the Activity Monitor or Task Instances list, click the task instance name to open the record. 2. The Execution User field identifies the user who launched the task instance.
Start Time	Date and time the task instance started.

End Time	Date and time the task instance ended.
Status	Current status of the task instance.
Type	Type of task instance.
Updated	Date and time this task instance ended or was last updated.

Task Instances List Task Bar

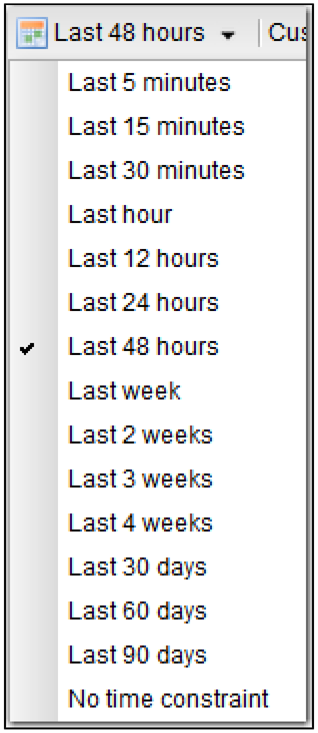
A Task Instances List task bar displays across the top of the Task Instances list, which allows you to select which task instances display on the list.



Time Constraint

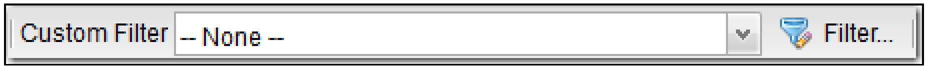
The Time Constraint drop-down list in the Task Instance Selections task bar allows you to select a time frame for which you want task instances to display on the list.

The default time constraint, as specified by the Task Instances Time Constraint user preference, is 48 hours.


Last 48 hours
Cus
Last 5 minutes
Last 15 minutes
Last 30 minutes
Last hour
Last 12 hours
Last 24 hours
✓ Last 48 hours
Last week
Last 2 weeks
Last 3 weeks
Last 4 weeks
Last 30 days
Last 60 days
Last 90 days
No time constraint

Filtering

The **Custom Filter** field and **Filter...** button in the Task Instance Selections task bar allows you to filter the list so that only task instances matching the specified criteria within the selected time constraint display on the list.


Custom Filter
-- None --
Filter...

See Filters for detailed information an applying and saving filters.

Displaying Task Instance Details

To display Details for a specific task instance, either:

- Click the **Instance Name** of the task instance to display the Details below the list.
- Click the **Details** icon next to the **Instance Name** of the task instance to display a Details pop-up.

From the task Instance Details, you can also display additional Details about the task instance:

Show Metadata	Displays Metadata for the task instance, including a status history.
Show Details	Displays complete database details for the task instance.
Show Variables	Displays a list of all variables available to the task instance, including any variables inherited from the parent or embedded (sub-Workflow) Workflow of the task instance.

Issuing Commands Against Task Instances

Where applicable, you can manually intervene in processing by issuing a command against one or more task instances.

For information about the commands available for each type of task, see Supported Commands.

Monitoring Activity History

- Overview
- Displaying the History List
- History List Task Bar
    - Time Constraint
    - Filtering
- Displaying History Details
    - History Details Field Descriptions

Overview

The History list (ops_history) provides an historical display of all completed task activity. Only task instances with a status in an "end state" (SUCCESS, FINISHED, FAILED, CANCELLED, START FAILURE, SKIPPED) display in the History list.

The list allows you to track information about specific task instances, including multiple runs. For example, Task A may have failed and then was re-run by a user. This task instance will display twice on the History list, first for the time that it ran and failed and again for the time it was re-run to success.

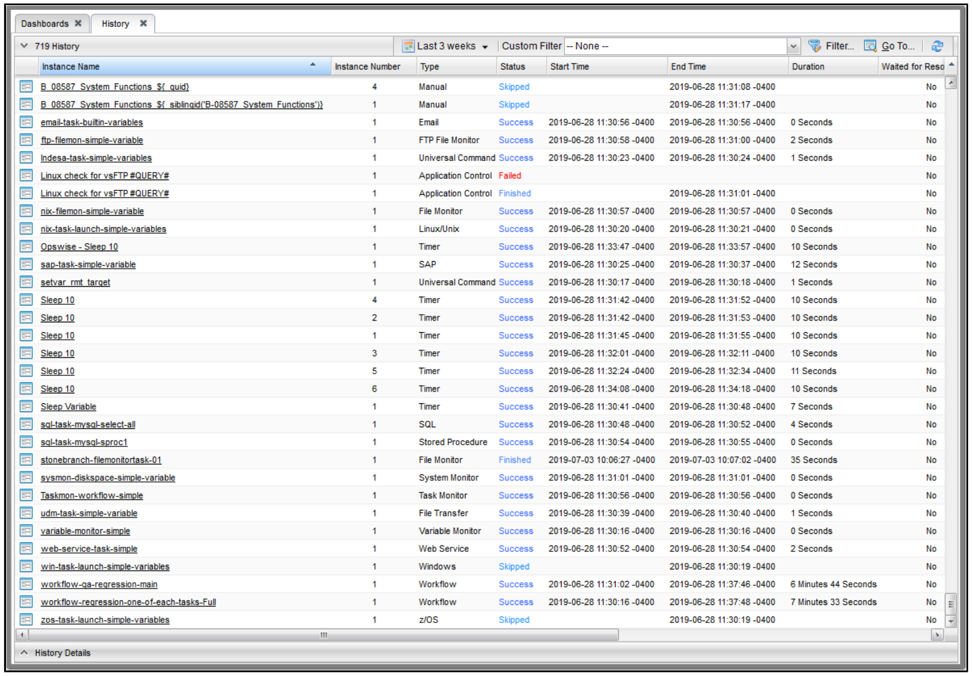
Note

If you want to display task activity for all tasks, for task instances in any status, and issue commands against those task instances, see the Activity Monitor and/or Task Instances list

If you want to display task activity for a specific task, for task instances in any status, and issue commands against those task instances, see the Viewing Task Instances for a Specific Task.

Displaying the History List

Step 1 From the Automation Center navigation pane, select **Task Instances > History**. The History list displays.

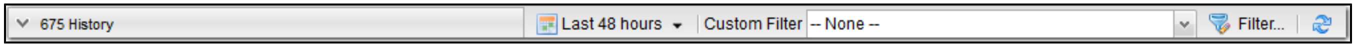


Instance Name	Instance Number	Type	Status	Start Time	End Time	Duration	Waited for Reso
B_08587_System_Functions_${_guid}	4	Manual	Skipped		2019-06-28 11:31:08 -0400		No
B_08587_System_Functions_${_siblingid('B-08587_System_Functions')}	1	Manual	Skipped		2019-06-28 11:31:17 -0400		No
email-task-builtin-variables	1	Email	Success	2019-06-28 11:30:56 -0400	2019-06-28 11:30:56 -0400	0 Seconds	No
ftp-filemon-simple-variable	1	FTP File Monitor	Success	2019-06-28 11:30:58 -0400	2019-06-28 11:31:00 -0400	2 Seconds	No
Indesa-task-simple-variables	1	Universal Command	Success	2019-06-28 11:30:23 -0400	2019-06-28 11:30:24 -0400	1 Seconds	No
Linux check for vsFTP #QUERY#	1	Application Control	Failed				No
Linux check for vsFTP #QUERY#	1	Application Control	Finished		2019-06-28 11:31:01 -0400		No
nix-filemon-simple-variable	1	File Monitor	Success	2019-06-28 11:30:57 -0400	2019-06-28 11:30:57 -0400	0 Seconds	No
nix-task-launch-simple-variables	1	Linux/Unix	Success	2019-06-28 11:30:20 -0400	2019-06-28 11:30:21 -0400	0 Seconds	No
Opswise - Sleep 10	1	Timer	Success	2019-06-28 11:33:47 -0400	2019-06-28 11:33:57 -0400	10 Seconds	No
sap-task-simple-variable	1	SAP	Success	2019-06-28 11:30:25 -0400	2019-06-28 11:30:37 -0400	12 Seconds	No
setvar_rmt_target	1	Universal Command	Success	2019-06-28 11:30:17 -0400	2019-06-28 11:30:18 -0400	1 Seconds	No
Sleep 10	4	Timer	Success	2019-06-28 11:31:42 -0400	2019-06-28 11:31:52 -0400	10 Seconds	No
Sleep 10	2	Timer	Success	2019-06-28 11:31:42 -0400	2019-06-28 11:31:53 -0400	10 Seconds	No
Sleep 10	1	Timer	Success	2019-06-28 11:31:45 -0400	2019-06-28 11:31:55 -0400	10 Seconds	No
Sleep 10	3	Timer	Success	2019-06-28 11:32:01 -0400	2019-06-28 11:32:11 -0400	10 Seconds	No
Sleep 10	5	Timer	Success	2019-06-28 11:32:24 -0400	2019-06-28 11:32:34 -0400	11 Seconds	No
Sleep 10	6	Timer	Success	2019-06-28 11:34:08 -0400	2019-06-28 11:34:18 -0400	10 Seconds	No
Sleep Variable	1	Timer	Success	2019-06-28 11:30:41 -0400	2019-06-28 11:30:48 -0400	7 Seconds	No
sql-task-mysql-select-all	1	SQL	Success	2019-06-28 11:30:48 -0400	2019-06-28 11:30:52 -0400	4 Seconds	No
sql-task-mysql-sproc1	1	Stored Procedure	Success	2019-06-28 11:30:54 -0400	2019-06-28 11:30:55 -0400	0 Seconds	No
stonebranch-filemonitortask-01	1	File Monitor	Finished	2019-07-03 10:06:27 -0400	2019-07-03 10:07:02 -0400	35 Seconds	No
sysmon-diskspace-simple-variable	1	System Monitor	Success	2019-06-28 11:31:01 -0400	2019-06-28 11:31:01 -0400	0 Seconds	No
Taskmon-workflow-simple	1	Task Monitor	Success	2019-06-28 11:30:56 -0400	2019-06-28 11:30:56 -0400	0 Seconds	No
udm-task-simple-variable	1	File Transfer	Success	2019-06-28 11:30:39 -0400	2019-06-28 11:30:40 -0400	1 Seconds	No
variable-monitor-simple	1	Variable Monitor	Success	2019-06-28 11:30:16 -0400	2019-06-28 11:30:16 -0400	0 Seconds	No
web-service-task-simple	1	Web Service	Success	2019-06-28 11:30:52 -0400	2019-06-28 11:30:54 -0400	2 Seconds	No
win-task-launch-simple-variables	1	Windows	Skipped		2019-06-28 11:30:19 -0400		No
workflow-qa-regression-main	1	Workflow	Success	2019-06-28 11:31:02 -0400	2019-06-28 11:37:46 -0400	6 Minutes 44 Seconds	No
workflow-regression-one-of-each-tasks-Full	1	Workflow	Success	2019-06-28 11:30:16 -0400	2019-06-28 11:37:48 -0400	7 Minutes 33 Seconds	No
zos-task-launch-simple-variables	1	z/OS	Skipped		2019-06-28 11:30:19 -0400		No

Step 2 You can modify the display by filtering, sorting, adding, and removing columns (see Record Lists).

History List Task Bar

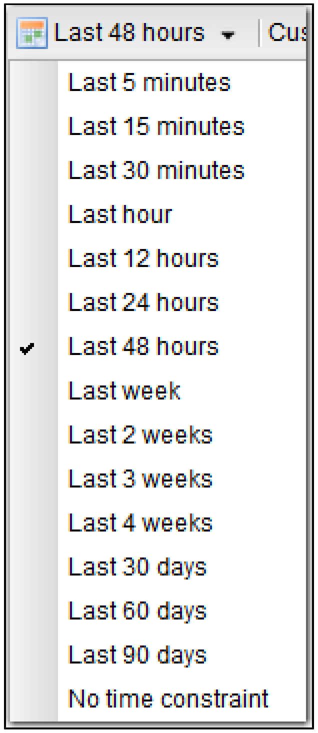
A History List task bar displays across the top of the History list, which allows you to select which task instances display on the list.



Time Constraint

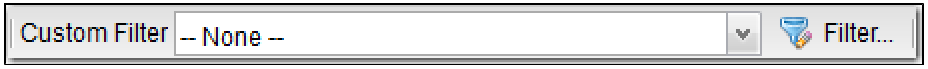
The Time Constraint drop-down list in the History List Selections task bar allows you to select a time frame for which you want task instances to display on the list.

The default time constraint, as specified by the History Time Constraint user preference, is 48 hours.


Last 48 hours
Cus
Last 5 minutes
Last 15 minutes
Last 30 minutes
Last hour
Last 12 hours
Last 24 hours
✓ Last 48 hours
Last week
Last 2 weeks
Last 3 weeks
Last 4 weeks
Last 30 days
Last 60 days
Last 90 days
No time constraint

Filtering

The **Custom Filter** field and **Filter...** button in the History List Selections task bar allows you to filter the list so that only task instances matching the specified criteria within the selected time constraint display on the list.

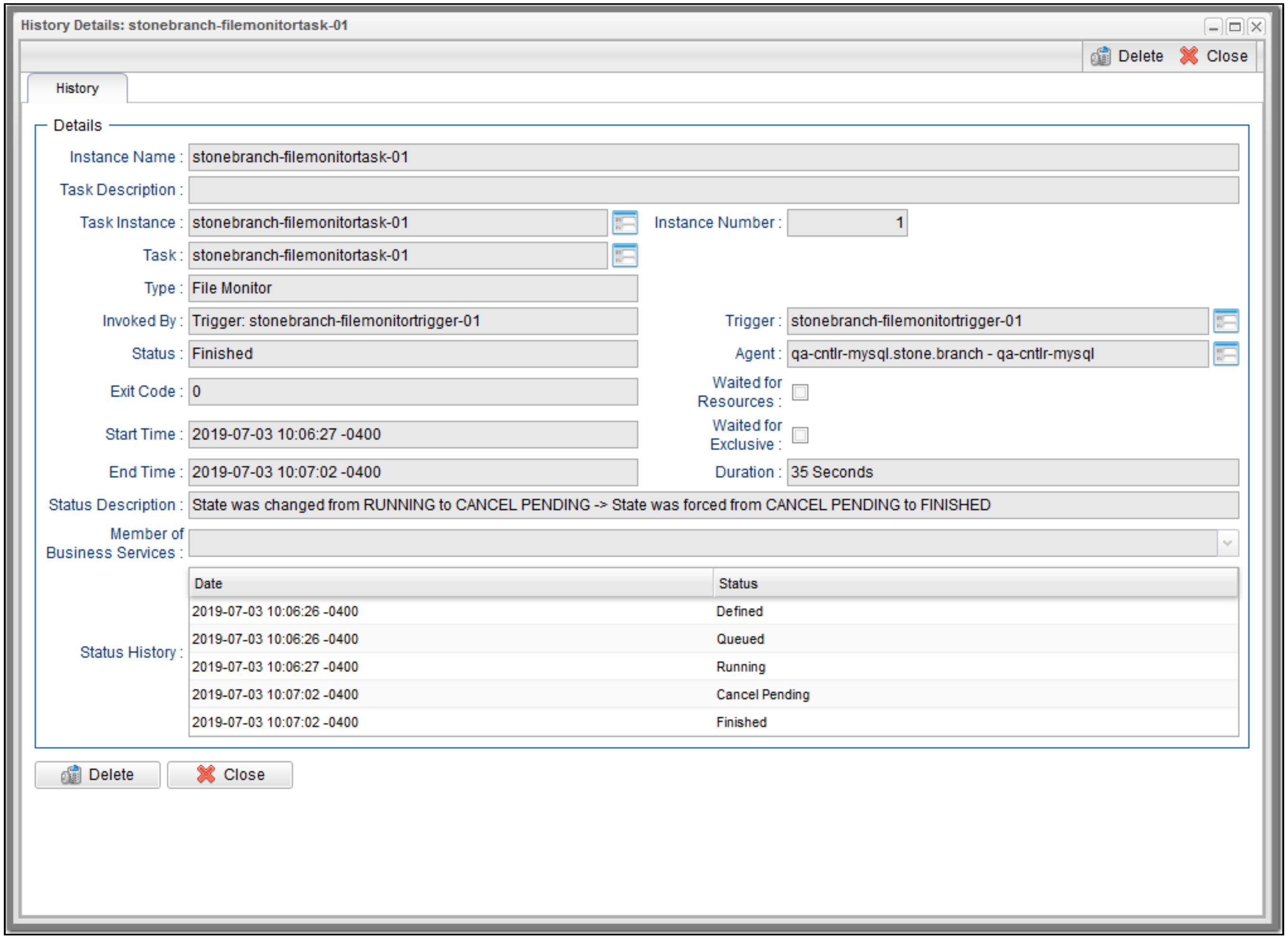

Custom Filter
-- None --
Filter...

See Filters for detailed information an applying and saving filters.

Displaying History Details

To display execution details about any task instance on the History list, either:

- Click anywhere in the task instance row to display the Details for that task instance below the list.
- Click the icon next to any **Instance Name** to display a pop-up version of the Details.



History Details: stonebranch-filemonitortask-01

Instance Name :	stonebranch-filemonitortask-01		
Task Description :			
Task Instance :	stonebranch-filemonitortask-01	Instance Number :	1
Task :	stonebranch-filemonitortask-01		
Type :	File Monitor		
Invoked By :	Trigger: stonebranch-filemonitortrigger-01	Trigger :	stonebranch-filemonitortrigger-01
Status :	Finished	Agent :	qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Exit Code :	0	Waited for Resources :	☐
Start Time :	2019-07-03 10:06:27 -0400	Waited for Exclusive :	☐
End Time :	2019-07-03 10:07:02 -0400	Duration :	35 Seconds
Status Description :	State was changed from RUNNING to CANCEL PENDING -> State was forced from CANCEL PENDING to FINISHED		
Member of Business Services :			

Status History :

Date	Status
2019-07-03 10:06:26 -0400	Defined
2019-07-03 10:06:26 -0400	Queued
2019-07-03 10:06:27 -0400	Running
2019-07-03 10:07:02 -0400	Cancel Pending
2019-07-03 10:07:02 -0400	Finished

History Details Field Descriptions

The following table describes the fields that display in History Details.

Field Name	Description
Instance Name	Text field; Name of this task instance.
Task Description	Description of this record. (Maximum = 200 characters.)

Task Instance	Reference field; Name of this task instance. If the task instance is deleted, this field is empty.
Instance Number	Sequentially assigned number, maintained per task, representing the creation order of the instance.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Type	Type of task that was run to create this task instance.
Universal Template	If Type = Universal; Name of the Universal Template on which the Universal Task Type is based.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Trigger	Name of the trigger that launched this task.
Status	System-supplied; see Task Instance Statuses.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an #Agent Cluster.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Waited for Resources	Indication of whether or not the task instance ran only after it waited for a resource to become available.
Start Time	System-supplied; Date and time the task instance started.
Waited for Exclusive	Indication of whether or not the task instance ran only after it waited for one or more tasks with which it was mutually exclusive to finish.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
End Time	System-supplied; Date and time the task instance completed.

Duration	System-supplied; amount of time the task instance took to run.
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Status History	History of statuses for this task instance.

Viewing Task Instances for a Specific Task

- Introduction
- Displaying Task Instance Details
- Displaying Additional Task Instance Details
- Show Task Instance Variables
    - Show / Hide Global Variables

Introduction

From the Task Details of any task, you can display a list of task instances for that task and the Details of any specific task instance.

The list will display all task instances for which there has been a status change or a modification to the task instance record within the last 30 days.

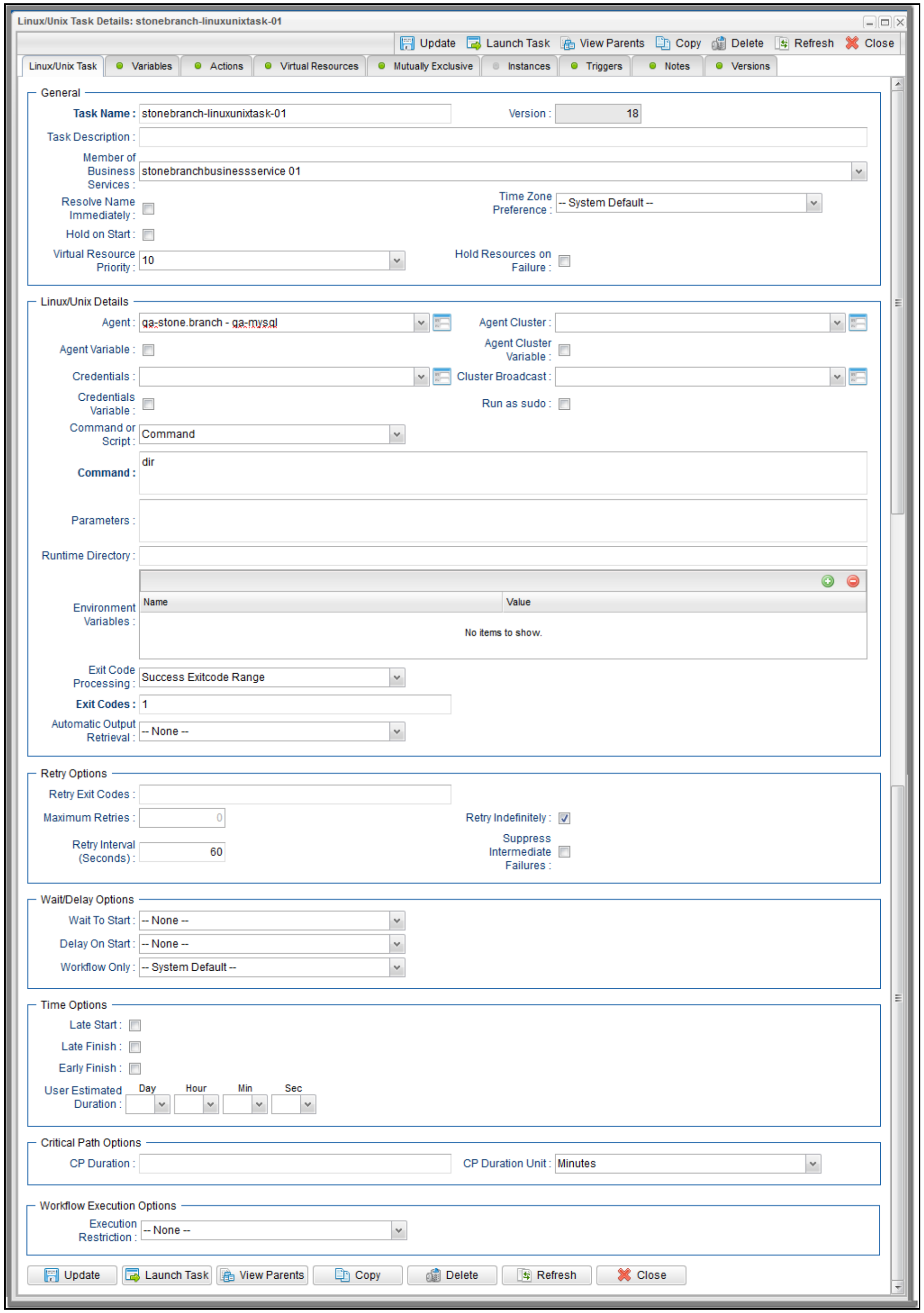
You also can display Details of any specific task instance from the:

- Activity Monitor
- Task Instances list

Displaying Task Instance Details

Step 1	From the Automation Center navigation pane, select the task from the **Tasks > All Tasks** or **Tasks ><task type> Tasks** list. The Task Details for that task displays.

	For example:


Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

Linux/Unix Task Details: stonebranch-linuxunixtask-01

General
Task Name : stonebranch-linuxunixtask-01
Version : 18
Task Description :
Member of Business Services : stonebranchbusinessservice 01
Resolve Name Immediately : ☐
Time Zone Preference : -- System Default --
Hold on Start : ☐
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Linux/Unix Details
Agent : qa-stone.branch - qa-mysql
Agent Cluster :
Agent Variable : ☐
Agent Cluster Variable : ☐
Credentials :
Cluster Broadcast :
Credentials Variable : ☐
Run as sudo : ☐
Command or Script : Command
Command : dir
Parameters :
Runtime Directory :
Environment Variables :

Name	Value
No items to show.	

Exit Code Processing : Success Exitcode Range
Exit Codes : 1
Automatic Output Retrieval : -- None --

Retry Options
Retry Exit Codes :
Maximum Retries : 0
Retry Indefinitely : ☑
Retry Interval (Seconds) : 60
Suppress Intermediate Failures : ☐

Wait/Delay Options
Wait To Start : -- None --
Delay On Start : -- None --
Workflow Only : -- System Default --

Time Options
Late Start : ☐
Late Finish : ☐
Early Finish : ☐
User Estimated Duration : Day Hour Min Sec

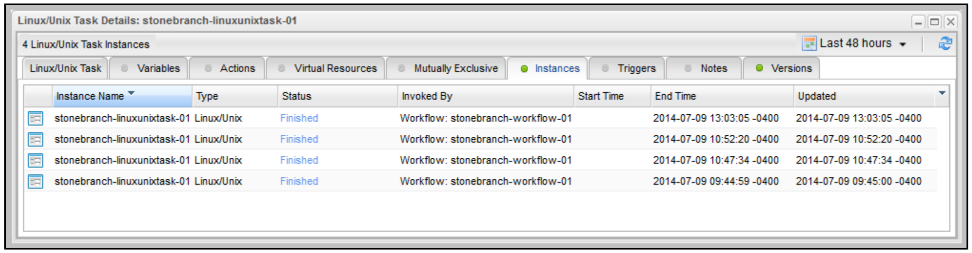
Critical Path Options
CP Duration :
CP Duration Unit : Minutes

Workflow Execution Options
Execution Restriction : -- None --

Step 2

Click the **Instances** tab. A list of instances for that task displays.

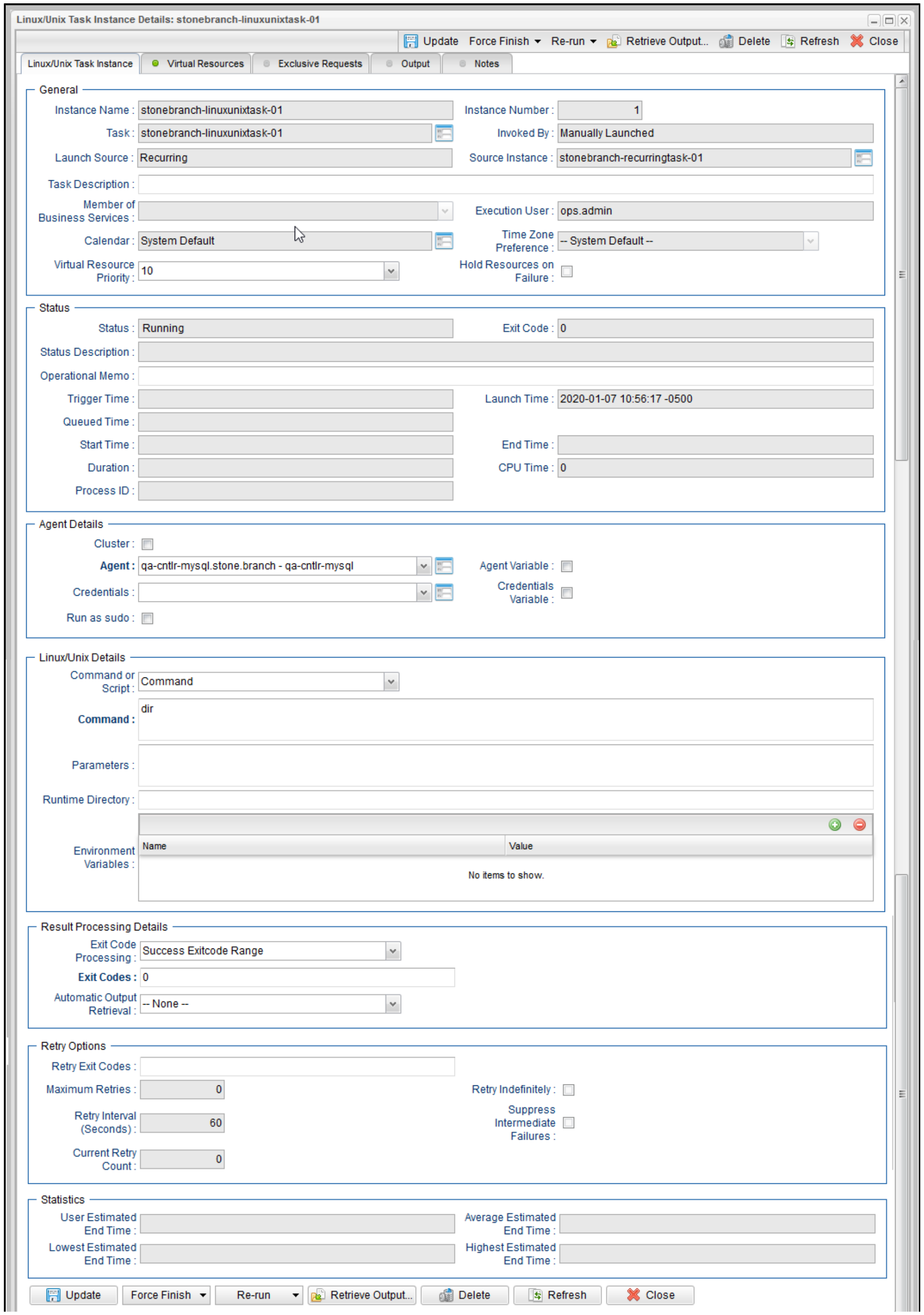
You can change the default time constraint for the display of task instances on the tab via the Task Instances Tab Time Constraint user preference.


Linux/Unix Task Details: stonebranch-linuxunixtask-01
4 Linux/Unix Task Instances
Last 48 hours
Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

Instance Name	Type	Status	Invoked By	Start Time	End Time	Updated
stonebranch-linuxunixtask-01	Linux/Unix	Finished	Workflow: stonebranch-workflow-01		2014-07-09 13:03:05 -0400	2014-07-09 13:03:05 -0400
stonebranch-linuxunixtask-01	Linux/Unix	Finished	Workflow: stonebranch-workflow-01		2014-07-09 10:52:20 -0400	2014-07-09 10:52:20 -0400
stonebranch-linuxunixtask-01	Linux/Unix	Finished	Workflow: stonebranch-workflow-01		2014-07-09 10:47:34 -0400	2014-07-09 10:47:34 -0400
stonebranch-linuxunixtask-01	Linux/Unix	Finished	Workflow: stonebranch-workflow-01		2014-07-09 09:44:59 -0400	2014-07-09 09:45:00 -0400

Step 3

Click the Details icon next to any **Instance Name** on the list to display the Details for that task instance.


Update
Force Finish
Re-run
Retrieve Output...
Delete
Refresh
Close
Linux/Unix Task Instance
Virtual Resources
Exclusive Requests
Output
Notes
No items to show.

Linux/Unix Task Instance Details: stonebranch-linuxunixtask-01

General

Instance Name : stonebranch-linuxunixtask-01
Instance Number : 1
Task : stonebranch-linuxunixtask-01
Invoked By : Manually Launched
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

Status : Running
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-07 10:56:17 -0500
Queued Time :
Start Time :
End Time :
Duration :
CPU Time : 0
Process ID :

Agent Details

Cluster : ☐
Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Agent Variable : ☐
Credentials :
Credentials Variable : ☐
Run as sudo : ☐

Linux/Unix Details

Command or Script : Command
Command : dir
Parameters :
Runtime Directory :
Environment Variables :

Name	Value

Result Processing Details

Exit Code Processing : Success Exitcode Range
Exit Codes : 0
Automatic Output Retrieval : -- None --

Retry Options

Retry Exit Codes :
Maximum Retries : 0
Retry Indefinitely : ☐
Retry Interval (Seconds) : 60
Suppress Intermediate Failures : ☐
Current Retry Count : 0

Statistics

User Estimated End Time :
Average Estimated End Time :
Lowest Estimated End Time :
Highest Estimated End Time :

Displaying Additional Task Instance Details

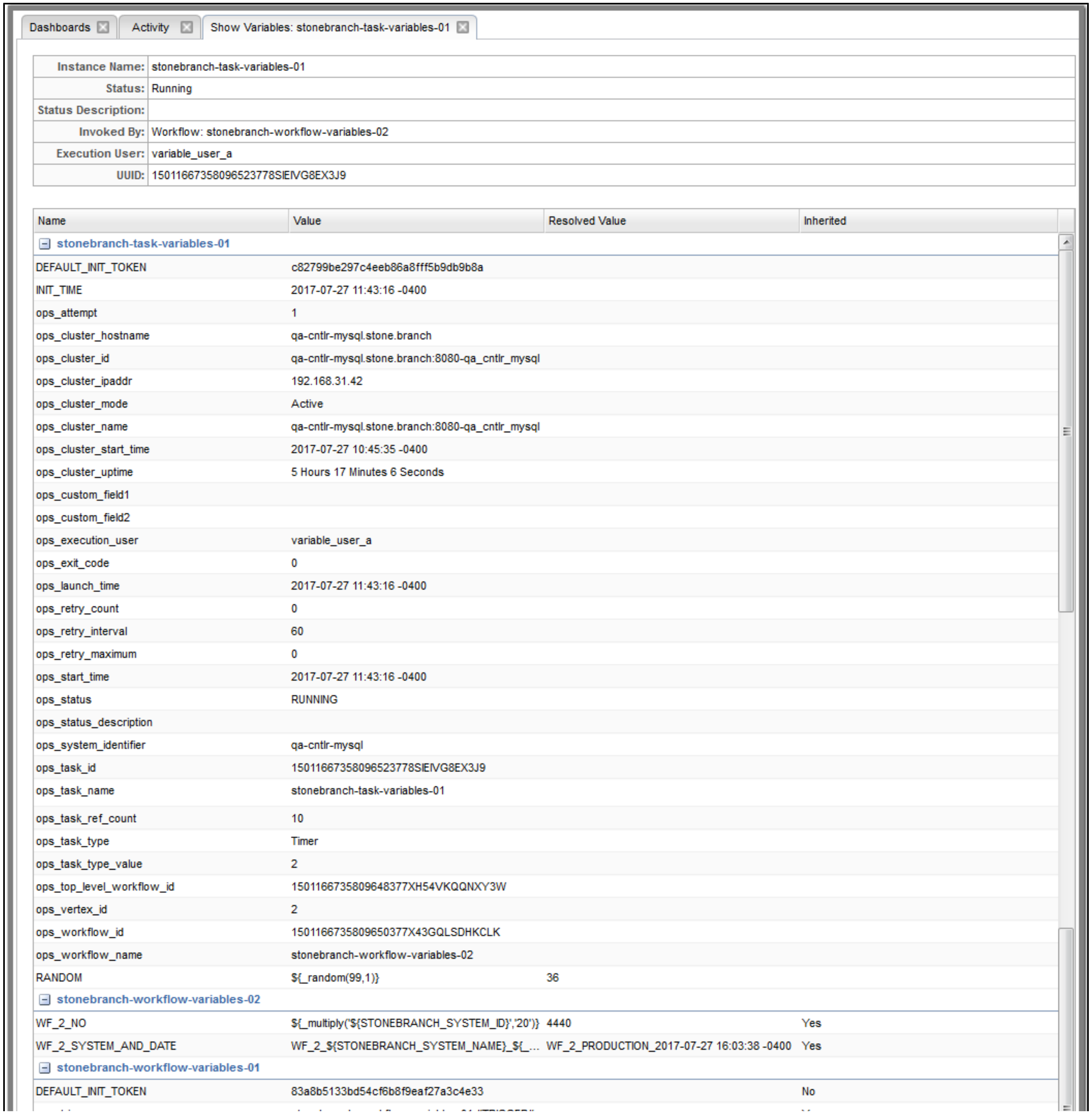
You can display additional Details for a task instance by right-clicking anywhere in the task instance to display an Action menu, and then selecting any of the following options from that menu:

Show Metadata	Displays Metadata for the task instance, including a status history.
Show Details	Displays complete database details for the task instance.
Show Variables	Displays a list of all variables available to the task instance, including any variables inherited from the parent or embedded (sub-Workflow) Workflow of the task instance.

Show Task Instance Variables

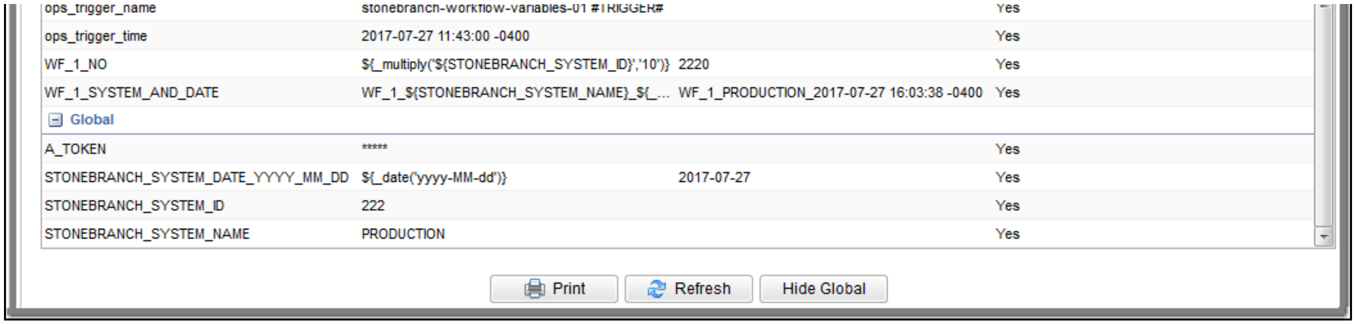
The Action menu for every task instance record Details contains a Details sub-menu. If you click **Show Variables** on this sub-menu, a Show Variables tab opens.

The Show Variables tab lists all variables available to the task instance. Variables inherited from the parent or embedded (sub-Workflow) Workflow of a task instance are listed in their own sections.



Instance Name:	stonebranch-task-variables-01
Status:	Running
Status Description:	
Invoked By:	Workflow: stonebranch-workflow-variables-02
Execution User:	variable_user_a
UUID:	15011667358096523778SIEIVG8EX3J9

Name	Value	Resolved Value	Inherited
stonebranch-task-variables-01			
DEFAULT_INIT_TOKEN	c82799be297c4eeb86a8fff5b9db9b8a		
INIT_TIME	2017-07-27 11:43:16 -0400		
ops_attempt	1		
ops_cluster_hostname	qa-cntlr-mysql.stone.branch		
ops_cluster_id	qa-cntlr-mysql.stone.branch:8080-qa_cntlr_mysql		
ops_cluster_ipaddr	192.168.31.42		
ops_cluster_mode	Active		
ops_cluster_name	qa-cntlr-mysql.stone.branch:8080-qa_cntlr_mysql		
ops_cluster_start_time	2017-07-27 10:45:35 -0400		
ops_cluster_uptime	5 Hours 17 Minutes 6 Seconds		
ops_custom_field1			
ops_custom_field2			
ops_execution_user	variable_user_a		
ops_exit_code	0		
ops_launch_time	2017-07-27 11:43:16 -0400		
ops_retry_count	0		
ops_retry_interval	60		
ops_retry_maximum	0		
ops_start_time	2017-07-27 11:43:16 -0400		
ops_status	RUNNING		
ops_status_description			
ops_system_identifier	qa-cntlr-mysql		
ops_task_id	15011667358096523778SIEIVG8EX3J9		
ops_task_name	stonebranch-task-variables-01		
ops_task_ref_count	10		
ops_task_type	Timer		
ops_task_type_value	2		
ops_top_level_workflow_id	1501166735809648377XH54VKQQNXY3W		
ops_vertex_id	2		
ops_workflow_id	1501166735809650377X43GQLSDHKCLK		
ops_workflow_name	stonebranch-workflow-variables-02		
RANDOM	${_random(99,1)}	36	
stonebranch-workflow-variables-02			
WF_2_NO	${_multiply('${STONEBRANCH_SYSTEM_ID}','20')}	4440	Yes
WF_2_SYSTEM_AND_DATE	WF_2_${STONEBRANCH_SYSTEM_NAME}_${_...	WF_2_PRODUCTION_2017-07-27 16:03:38 -0400	Yes
stonebranch-workflow-variables-01			
DEFAULT_INIT_TOKEN	83a8b5133bd54cf6b8f9eaf27a3c4e33		No



ops_trigger_name	stonebranch-workflow-variables-01 #TRIGGER#		Yes
ops_trigger_time	2017-07-27 11:43:00 -0400		Yes
WF_1_NO	${_multiply('${STONEBRANCH_SYSTEM_ID}','10')}	2220	Yes
WF_1_SYSTEM_AND_DATE	WF_1_${STONEBRANCH_SYSTEM_NAME}_${_...	WF_1_PRODUCTION_2017-07-27 16:03:38 -0400	Yes
⊟ Global			
A_TOKEN	*****		Yes
STONEBRANCH_SYSTEM_DATE_YYYY_MM_DD	${_date('yyyy-MM-dd')}	2017-07-27	Yes
STONEBRANCH_SYSTEM_ID	222		Yes
STONEBRANCH_SYSTEM_NAME	PRODUCTION		Yes

Field	Description
Name	Name of the variable.
Value	Value of the variable. If the variable was defined by using the Variables tab on a trigger, task, or workflow (that is, a Local Variable), and it is a composite of other variables and/or functions, it will remain a composite of those variables and/or functions. Each time that variable is resolved, it will produce a dynamic resolution, which could differ from the previous resolution. The Resolved Value field will show what that variable would resolve to now. For example: unique_id=${ops_task_name}-${ops_task_id}-${ops_task_ref_count}-${_date()} If the variable was defined by using a Set Variable action for a task or workflow, and it is a composite of other variables, the value would be fully resolved.
Resolved Value	If the variable is a composite of other variables and/or functions; value that the variable would resolve to now. For example, using unique_id from the Value field, above: unique_id=stonebranch-task-variables-01-15011667358096523778SIEIVG8EX3J9-10-2017-07-27 16:03:38-0400
Inherited	Indication (Yes or No) for whether a variable defined in the workflow hierarchy, or globally, would be inherited by the task instance. For example, if the task instance already has that variable defined within its own scope, or within a more direct workflow scope, the variable would not be inherited. (This field is not applicable for variables defined within the task instances own scope.)
Buttons	This section identifies the buttons displayed below the list of variables.
Print	Allows you to print the Show Variables table.
Refresh	Refreshes the information in the Show Variables table.
Show Global	Shows Global variables in the table.
Hide Global	Hides Global variables in the table.

Show / Hide Global Variables

You can toggle the visibility of Global variables using the Show Global or Hide Global button.

By default (the Show Variables Fetch Global Automatically Universal Controller system property default is No), Global variables are not fetched and displayed automatically in the Show Variables tab, since there could be a large number of Global variables, and only a few (or none) could be relevant to a specific task instance.

Furthermore, you may want to use the Set Variable action on a workflow in Defined status to populate the workflow instance with its own variables generated from Global variables, which often can be date/time related functions that need to be resolved at Trigger/Launch time.

Any user can change the default visibility of Global variables by using the Show Variables Fetch Global Automatically User Preference.

The following constraints apply when viewing Global variables from Show Variables.

- The task instance can only use (or Read) global variables for which the task instance Execution User has Variable Read permission for, therefore, the report will only display those global variables.
- If the user running the Show Variables report does not have Variable Read permission for a global variable in the report, the Value field will be masked with *****.
- If the user must be able to view a global variable value from the report, an administrator must grant the user the appropriate Variable Read permission.

Displaying Task Instance Status

- Displaying Task Instance Status
- Task Instance Status Types
    - Agent-Based Task Types
- Task Instance Status Colors

Displaying Task Instance Status

You can display the status of one or more task instances from the Activity Monitor, Task Instances list, History list, or Command Line Interface (CLI).

Activity Monitor	To display the status of one or more task instances on the Activity Monitor: - From the Automation Center navigation pane, select **Task Instances > Activity**. The Activity Monitor contains a **Status** column that identifies the current status of every task instance on the list.
Task Instances list	To display the status of one or more task instances on the Task Instances list: - From the Automation Center navigation pane, select **Task Instances > All Task Instances**. The Task Instances list contains a **Status** column that identifies the current status of every task instance on the list.
History list	To display the status of one or more task instances on the History list: - From the Automation Center navigation pane, select **Task Instances > History**. The History list contains a **Status** column that identifies the current status of every task instance on the list.
Command Line Interface (CLI)	To display the status of one or more task instances from the Command Line Interface: - Use the ops-task-status function.

Task Instance Status Types

The following table describes all possible task instance statuses for all task types.

For a list of commands that you can issue against a task instance in each status, see Commands Supported for Task Instance Statuses.

For a description of each command, see Issuing Commands Against Task Instances.

Note

⚠ The format of multi-word task status names used in the Controller user interface differs from the format of task status names specified in the Display Task Instance Status CLI function. In the user interface, they are separated by a space; in the Display Task Instance Status CLI function, the words are separated by an underscore character.

Status Code	Status Name	Task Type	Description
0	Defined	All	The new task instance has been created (the task has been launched).
10	Waiting	All	The task instance has been loaded by a workflow and is waiting on a predecessor.
15	Time Wait	All (except Timer)	The task instance is waiting to start based on a Wait To Start and/or Delay On Start specification.
20	Held	All	The task instance has been put on hold by a user.
22	Exclusive Requested	All	All task instances with a mutually exclusive task defined go immediately to a status of Exclusive Requested. If the task instance is available to run exclusively, the task instance then moves to the next appropriate processing status.
23	Exclusive Wait	All	The task instance is mutually exclusive with one or more other task instances, and it is waiting for those task instances to finish before it will run.
25	Resource Requested	All	All task instances with a virtual resource defined go immediately to a status of Resource Requested. If the resource is available, the task instance then moves to the next appropriate processing status.
30	Resource Wait	All	All task instances with a virtual resource defined go immediately to a status of Resource Requested. If the resource is not available, the task instance goes to a status of Resource Wait. When the resource becomes available, the task instance moves to the next appropriate processing status.
33	Execution Wait	Agent-based	The task instance must wait to be completed; either the Agent/Agent Cluster running the task instance has reached its Task Execution Limit, or the ability of the Agent /Agent Cluster to run tasks has been suspended.
35	Undeliverable	Agent-based	The Agent is unavailable.
40	Queued	Agent-based	The task instance has been queued on a resource.
43	Submitted	z/OS	The task instance has been submitted to the z/OS Job Entry subsystem and scheduled by the z/OS Job Scheduler.
45	Step Restarted	z/OS	The task instance has been re-run starting from a specific z/OS jobstep.
60	Action Required	Manual	When a Manual task launches, the task instance goes into Action Required status, meaning a user must perform some manual activity. For details, see Manual task.
70	Started	Agent-based, Manual	The task instance has started. For Agent-based tasks, this means the Agent has received the task.
80	Running	All	The task instance is running. For Agent-based tasks, the Agent has started running the program.
81	Running /Problems	Workflow	One or more task instances within the workflow has one of the following statuses: • Cancelled • Confirmation Required • Failure • In Doubt • Running/Problems (for sub-workflows) • Start Failure • Undeliverable
99	Cancel Pending	Agent-based	A process running on the Agent needs to be terminated. When the Cancel command is issued, the task instance will go into a Cancel Pending status until the Agent reports back that the process has been cancelled. At that point, the task instance will transition into the Cancelled status.
110	In Doubt	Agent-based, SQL, Stored Procedure, Web Service	The task instance is "in doubt" about the current status of the job. This may occur if an Agent or Agent connection goes down. In this case, the Agent restarts and reviews its data about task instances in progress. If the Agent finds a task instance still running, it resumes normal monitoring. If the Agent cannot find the task instance, this usually indicates that the task instance completed, but the Agent considers the task instance status to be "in doubt." When the Controller restarts, any SQL, Stored Procedure, and Web Service task instances that are in a Running status will transition into the In Doubt status, since the Controller no longer has any knowledge of them.
120	Start Failure	All	The task instance was unable to start.
125	Confirmation Required	z/OS	If you make JCL changes and restart a z/OS task instance, Universal Controller will put the task instance into Confirmation Required status and prompt you for a confirmation. For detailed processing steps, see Rerunning a z/OS Task.
130	Cancelled	All	The task instance was cancelled by a user.

140	Failed	All (except Workflow)	The task instance ran to a failure status.
180	Skipped	All	The task instance was skipped by Run/Skip criteria, an Execution Restriction, or the Skip command.
190	Finished	All	The task instance was forced by the user to finish. The user may do this in cases where the task instance had a Cancelled or Failed status, and the user needed to release other task instances depending on the successful completion of this task instance in a workflow. For more information, see Force Finishing a Task.
200	Success	All	The task instance has completed successfully. Workflows will transition to Success status when all of its task instances have transitioned to Success, Finished, or Skipped status.

Agent-Based Task Types

The following task types are Agent-based task types:

- Linux/Unix
- Windows
- z/OS
- Universal Command
- SAP
- PeopleSoft
- File Transfer
- Agent File Monitor
- Remote File Monitor
- System Monitor
- Universal

Task Instance Status Colors

You can change the default color assigned to each task instance status via the Colors, in the **Reporting** navigation pane.

Retrieving Output

- Overview
  - Task Instance Output
- Retrieving Output Automatically
- Retrieving Output Manually
- Retrieve Output Field Descriptions

Overview

For some Agent-based task instances where output has been generated (see Task Instance Output, below), you can choose to have the output retrieved automatically or manually.

Task Instance Output

The following table identifies the types of Agent-based tasks whose task instances generate output, and the type of output they generate:

Task Type	Standard Output	Standard Error	z/OS Job Log
Linux/UNIX	✓	✓	
Windows	✓	✓	
z/OS			✓
Universal Command	✓	✓	
SAP	✓	✓	
PeopleSoft	✓	✓	
File Transfer	✓	✓	
Remote File Monitor	✓	✓	
Universal	✓	✓	

Note

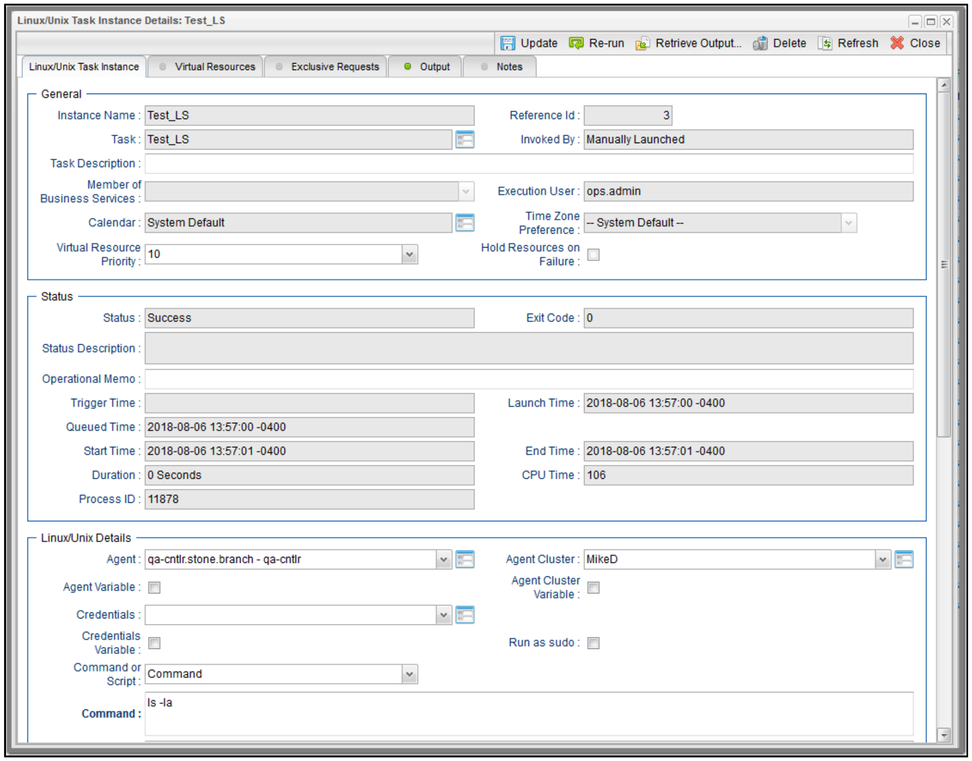
For File Transfer tasks, you cannot choose to select automatic or manual output retrieval. The Controller always retrieves its output automatically.

Similarly, although Web Service tasks are not Agent-based tasks, Web Service task instances always produce output, which the Controller always retrieves automatically.

Retrieving Output Automatically

You can specify that Universal Controller automatically retrieves output from an Agent-based task instance after it has completed running.

Step 1	Specify Automatic Output Retrieval for a task (in its Automatic Output Retrieval field).
Step 2	Run the task; the Controller automatically retrieves that type of output for the task instance.

Step 3	From the Automation Center navigation pane, select **Task Instances > Activity** or **Task Instances > Task Instances** to display the Activity Monitor or Task Instances list.
Step 4	Open the task instance. The Output tab displays a green icon, indicating that output has been retrieved automatically. 

Linux/Unix Task Instance Details: Test_LS
Update
Re-run
Retrieve Output...
Delete
Refresh
Close
Linux/Unix Task Instance
Virtual Resources
Exclusive Requests
● Output
Notes

General

Instance Name : Test_LS
Reference Id : 3
Task : Test_LS
Invoked By : Manually Launched
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

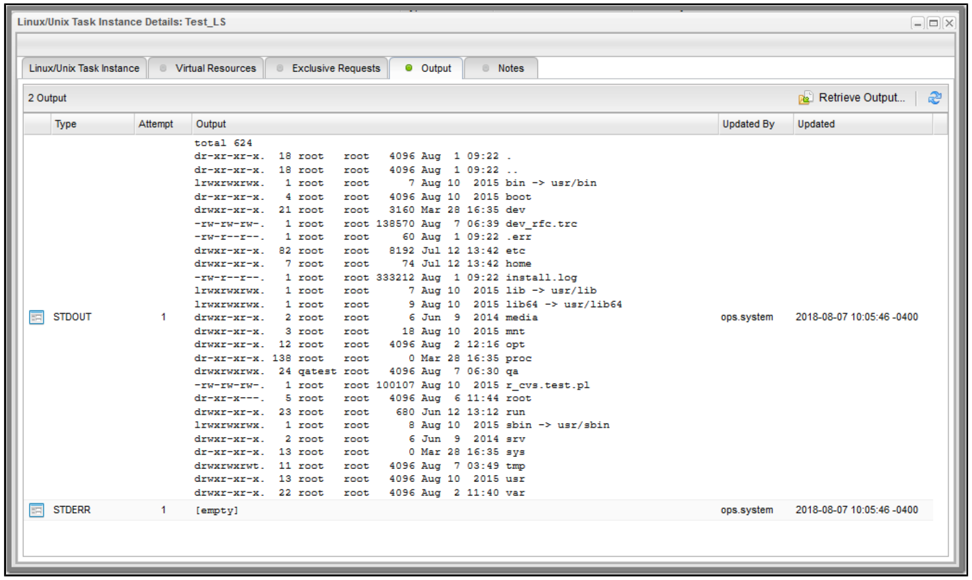
Status

Status : Success
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2018-08-06 13:57:00 -0400
Queued Time : 2018-08-06 13:57:00 -0400
Start Time : 2018-08-06 13:57:01 -0400
End Time : 2018-08-06 13:57:01 -0400
Duration : 0 Seconds
CPU Time : 106
Process ID : 11878

Linux/Unix Details

Agent : qa-cntlr.stone.branch - qa-cntlr
Agent Cluster : MikeD
Agent Variable : ☐
Agent Cluster Variable : ☐
Credentials :
Credentials Variable : ☐
Run as sudo : ☐
Command or Script : Command
Command : ls -la

Step 5 Click the Output tab to view the output that you specified to be automatically retrieved.

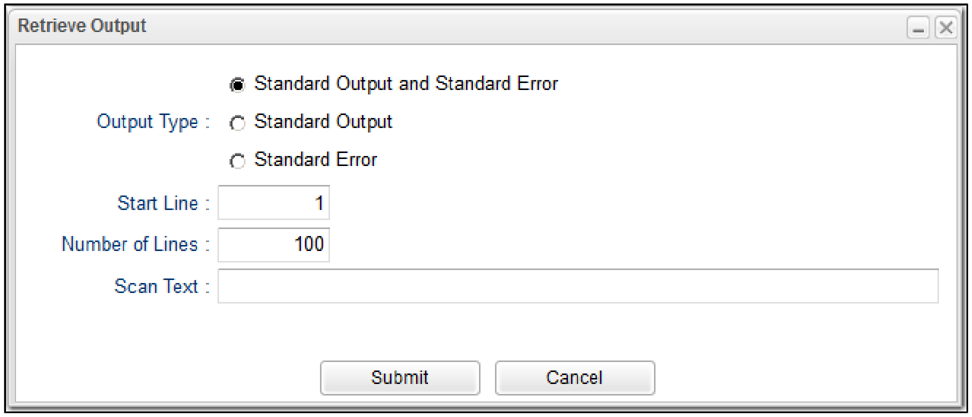


Type	Attempt	Output	Updated By	Updated
STDOUT	1		ops.system	2018-08-07 10:05:46 -0400
STDERR	1	[empty]	ops.system	2018-08-07 10:05:46 -0400

```
total 624
dr-xr-xr-x.  18 root   root   4096 Aug  1 09:22 .
dr-xr-xr-x.  18 root   root   4096 Aug  1 09:22 ..
lrwxrwxrwx.   1 root   root      7 Aug 10  2015 bin -> usr/bin
dr-xr-xr-x.   4 root   root   4096 Aug 10  2015 boot
drwxr-xr-x.  21 root   root   3160 Mar 28 16:35 dev
-rw-rw-rw-.   1 root   root 138570 Aug  7 06:39 dev_rfc.trc
-rw-r--r--.   1 root   root     60 Aug  1 09:22 .err
drwxr-xr-x.  82 root   root   8192 Jul 12 13:42 etc
drwxr-xr-x.   7 root   root     74 Jul 12 13:42 home
-rw-r--r--.   1 root   root 333212 Aug  1 09:22 install.log
lrwxrwxrwx.   1 root   root      7 Aug 10  2015 lib -> usr/lib
lrwxrwxrwx.   1 root   root      9 Aug 10  2015 lib64 -> usr/lib64
drwxr-xr-x.   2 root   root      6 Jun  9  2014 media
drwxr-xr-x.   3 root   root     18 Aug 10  2015 mnt
drwxr-xr-x.  12 root   root   4096 Aug  2 12:16 opt
dr-xr-xr-x. 138 root   root      0 Mar 28 16:35 proc
drwxrwxrwx.  24 qatest root   4096 Aug  7 06:30 qa
-rw-rw-rw-.   1 root   root 100107 Aug 10  2015 r_cvs.test.pl
dr-xr-x---.   5 root   root   4096 Aug  6 11:44 root
drwxr-xr-x.  23 root   root    680 Jun 12 13:12 run
lrwxrwxrwx.   1 root   root      8 Aug 10  2015 sbin -> usr/sbin
drwxr-xr-x.   2 root   root      6 Jun  9  2014 srv
dr-xr-xr-x.  13 root   root      0 Mar 28 16:35 sys
drwxrwxrwt.  11 root   root   4096 Aug  7 03:49 tmp
drwxr-xr-x.  13 root   root   4096 Aug 10  2015 usr
drwxr-xr-x.  22 root   root   4096 Aug  2 11:40 var
```

Step 6

You can click the **Retrieve Output...** button to display the Retrieve Output dialog, which lets you select different, or additional, output to retrieve.



Retrieve Output

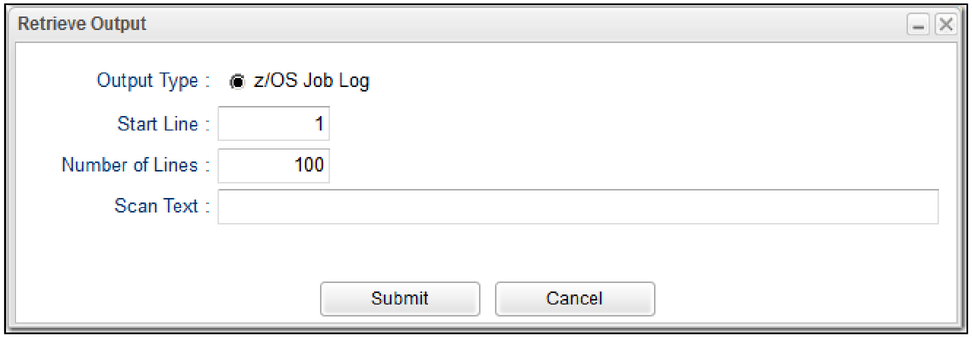
Output Type : ● Standard Output and Standard Error
○ Standard Output
○ Standard Error

Start Line : 1

Number of Lines : 100

Scan Text :

If the selected task is a z/OS task, the Retrieve Output dialog contains a single **Output Type** selection:



Retrieve Output

Output Type : ● z/OS Job Log

Start Line : 1

Number of Lines : 100

Scan Text :

Step 7

Using the field descriptions below as a guide, make your selection. Positioning can be accomplished by using Start Line or Scan Text fields to see the Number of Lines both before and after the first match of text.

Note

If you want to retrieve data starting at the end of a file, enter **-1** in the Start Line field and the number of lines to retrieve in the Number of Lines field.

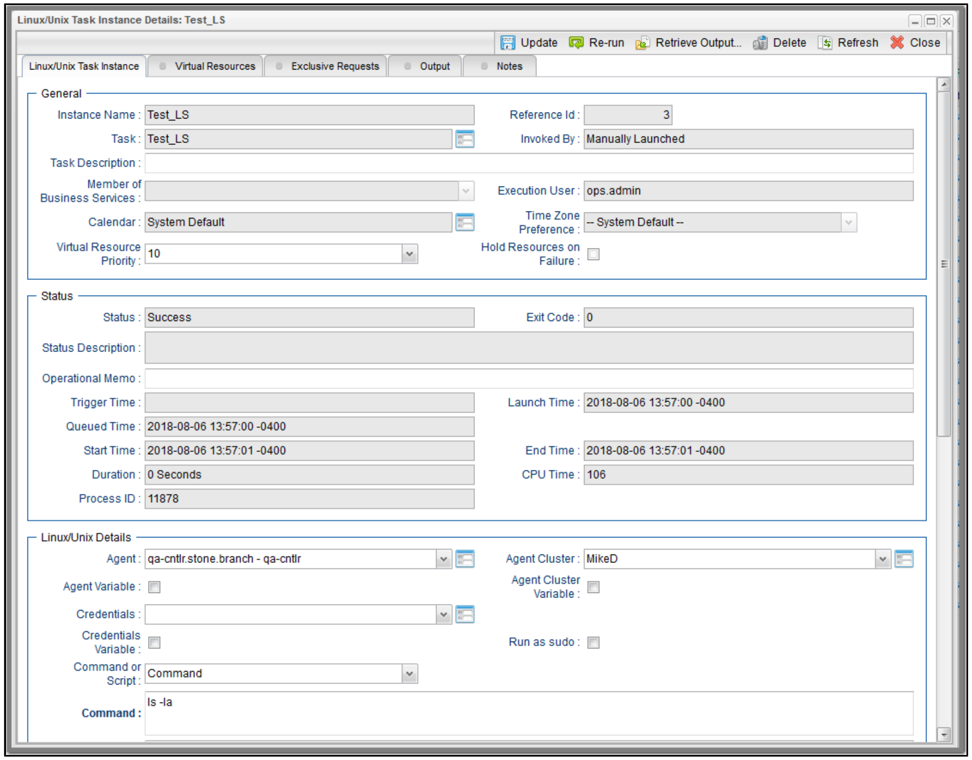
Retrieving Output Manually

You can choose to retrieve output manually from a task instance while it is running or after it has completed running.

Step 1

From the Automation Center navigation pane, select **Task Instances > Activity** or **Task Instances > Task Instances** to display the Activity Monitor or Task Instances list.

Step 2 Open the task instance from which you want to retrieve output. The Output tab displays a gray icon, indicating that output has not been retrieved automatically.


Linux/Unix Task Instance Details: Test_LS
Update
Re-run
Retrieve Output...
Delete
Refresh
Close
Linux/Unix Task Instance
Virtual Resources
Exclusive Requests
Output
Notes

General

Instance Name : Test_LS
Reference Id : 3
Task : Test_LS
Invoked By : Manually Launched
Task Description :
Member of Business Services :
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure : ☐

Status

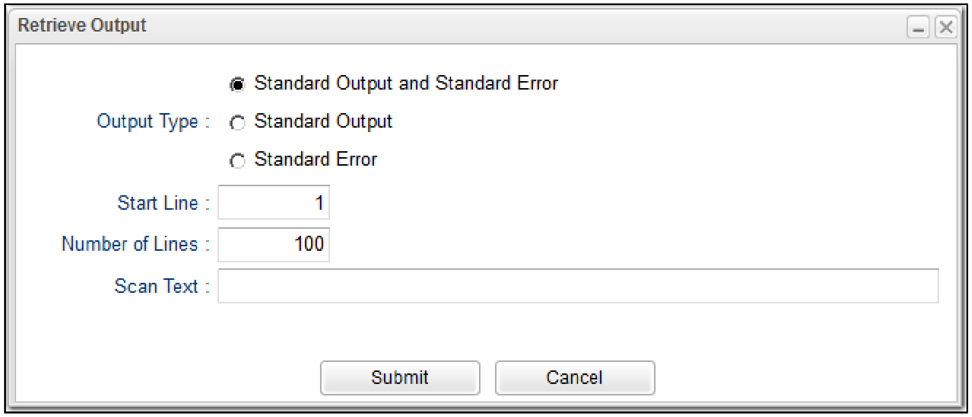
Status : Success
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2018-08-06 13:57:00 -0400
Queued Time : 2018-08-06 13:57:00 -0400
Start Time : 2018-08-06 13:57:01 -0400
End Time : 2018-08-06 13:57:01 -0400
Duration : 0 Seconds
CPU Time : 106
Process ID : 11878

Linux/Unix Details

Agent : qa-cntlr.stone.branch - qa-cntlr
Agent Cluster : MikeD
Agent Variable : ☐
Agent Cluster Variable : ☐
Credentials :
Credentials Variable : ☐
Run as sudo : ☐
Command or Script : Command
Command : ls -la

Step 3

Click the Retrieve Output button to display the Retrieve Output dialog.



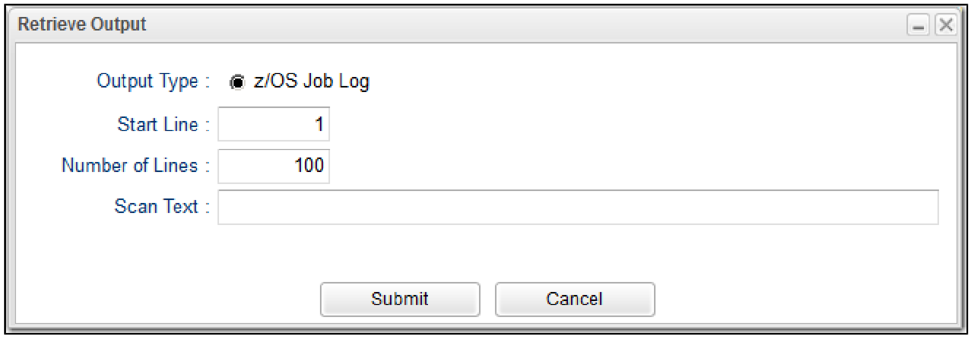
Output Type : ● Standard Output and Standard Error
○ Standard Output
○ Standard Error

Start Line : 1

Number of Lines : 100

Scan Text :

If the selected task is a z/OS task, the Retrieve Output dialog contains a single **Output Type** selection:



Output Type : ● z/OS Job Log

Start Line : 1

Number of Lines : 100

Scan Text :

Step 4

Using the field descriptions below as a guide, make your selection. Positioning can be accomplished by using Start Line or Scan Text fields to see the Number of Lines both before and after the first match of text.

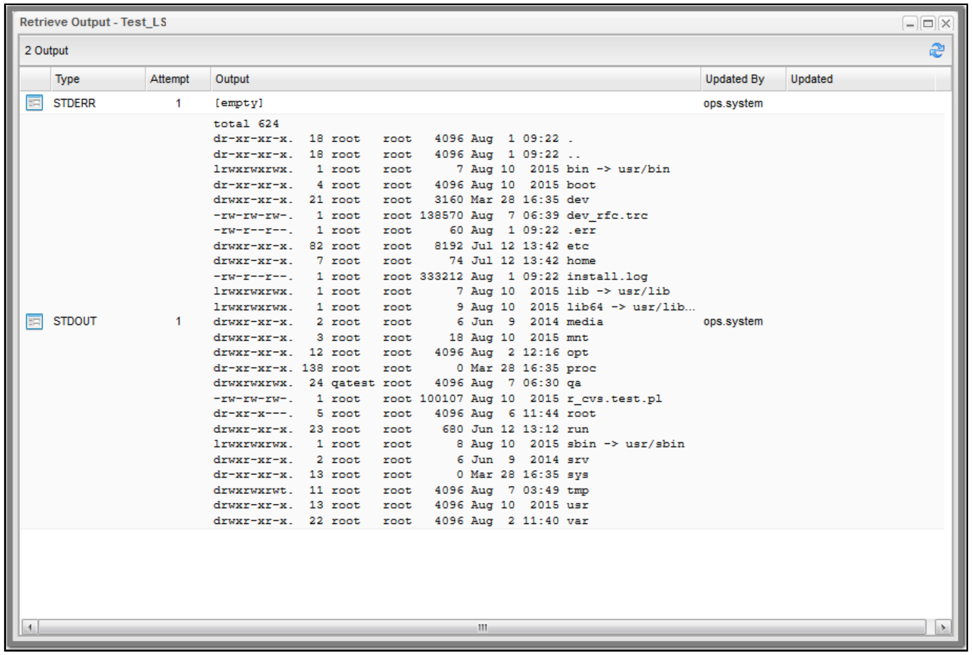
Note

If you want to retrieve data starting at the end of a file, enter **-1** in the Start Line field and the number of lines to retrieve in the Number of Lines field.

Step 5

Click the **Submit** button. The Controller retrieves the output you specified and displays a Retrieve Output list containing the requested type of output.

(It also writes the output to the **Output** tab of the task instance.)



Retrieve Output - Test_LS

2 Output

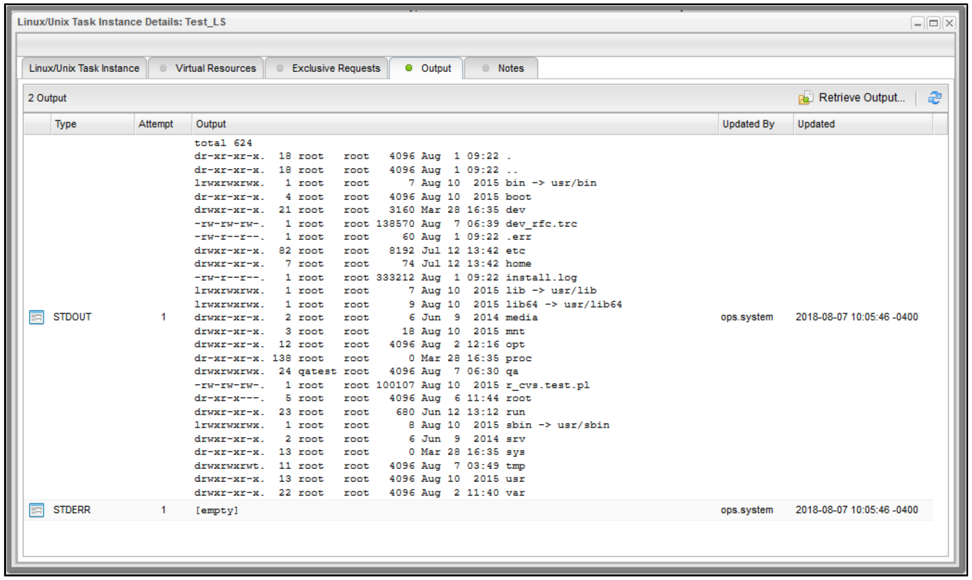
Type	Attempt	Output	Updated By	Updated
STDERR	1	[empty]	ops.system	
STDOUT	1		ops.system	

STDOUT

```
total 624
dr-xr-xr-x.  18 root   root   4096 Aug  1 09:22 .
dr-xr-xr-x.  18 root   root   4096 Aug  1 09:22 ..
lrwxrwxrwx.   1 root   root      7 Aug 10  2015 bin -> usr/bin
dr-xr-xr-x.   4 root   root   4096 Aug 10  2015 boot
drwxr-xr-x.  21 root   root   3160 Mar 28 16:35 dev
-rw-rw-rw-.   1 root   root 138570 Aug  7 06:39 dev_rfc.trc
-rw-r--r--.   1 root   root     60 Aug  1 09:22 .err
drwxr-xr-x.  82 root   root   8192 Jul 12 13:42 etc
drwxr-xr-x.   7 root   root     74 Jul 12 13:42 home
-rw-r--r--.   1 root   root 333212 Aug  1 09:22 install.log
lrwxrwxrwx.   1 root   root      7 Aug 10  2015 lib -> usr/lib
lrwxrwxrwx.   1 root   root      9 Aug 10  2015 lib64 -> usr/lib...
drwxr-xr-x.   2 root   root      6 Jun  9  2014 media
drwxr-xr-x.   3 root   root     18 Aug 10  2015 mnt
drwxr-xr-x.  12 root   root   4096 Aug  2 12:16 opt
dr-xr-xr-x. 138 root   root      0 Mar 28 16:35 proc
drwxrwxrwx.  24 qatest root   4096 Aug  7 06:30 qa
-rw-rw-rw-.   1 root   root 100107 Aug 10  2015 r_cvs.test.pl
dr-xr-x---.   5 root   root   4096 Aug  6 11:44 root
drwxr-xr-x.  23 root   root    680 Jun 12 13:12 run
lrwxrwxrwx.   1 root   root      8 Aug 10  2015 sbin -> usr/sbin
drwxr-xr-x.   2 root   root      6 Jun  9  2014 srv
dr-xr-xr-x.  13 root   root      0 Mar 28 16:35 sys
drwxrwxrwt.  11 root   root   4096 Aug  7 03:49 tmp
drwxr-xr-x.  13 root   root   4096 Aug 10  2015 usr
drwxr-xr-x.  22 root   root   4096 Aug  2 11:40 var
```

Step 6

If you now click the Output tab with the gray icon on the task instance Details, the icon becomes green, and the retrieved output displays.



Type	Attempt	Output	Updated By	Updated
STDOUT	1		ops.system	2018-08-07 10:05:46 -0400
STDERR	1	[empty]	ops.system	2018-08-07 10:05:46 -0400

```
total 624
dr-xr-xr-x.  18 root   root   4096 Aug  1 09:22 .
dr-xr-xr-x.  18 root   root   4096 Aug  1 09:22 ..
lrwxrwxrwx.   1 root   root      7 Aug 10  2015 bin -> usr/bin
dr-xr-xr-x.   4 root   root   4096 Aug 10  2015 boot
drwxr-xr-x.  21 root   root   3160 Mar 28 16:35 dev
-rw-rw-rw-.   1 root   root 138570 Aug  7 06:39 dev_rfc.trc
-rw-r--r--.   1 root   root     60 Aug  1 09:22 .err
drwxr-xr-x.  82 root   root   8192 Jul 12 13:42 etc
drwxr-xr-x.   7 root   root     74 Jul 12 13:42 home
-rw-r--r--.   1 root   root 333212 Aug  1 09:22 install.log
lrwxrwxrwx.   1 root   root      7 Aug 10  2015 lib -> usr/lib
lrwxrwxrwx.   1 root   root      9 Aug 10  2015 lib64 -> usr/lib64
drwxr-xr-x.   2 root   root      6 Jun  9  2014 media
drwxr-xr-x.   3 root   root     18 Aug 10  2015 mnt
drwxr-xr-x.  12 root   root   4096 Aug  2 12:16 opt
dr-xr-xr-x. 138 root   root      0 Mar 28 16:35 proc
drwxrwxrwx.  24 qatest root   4096 Aug  7 06:30 qa
-rw-rw-rw-.   1 root   root 100107 Aug 10  2015 r_cvs.test.pl
dr-xr-x---.   5 root   root   4096 Aug  6 11:44 root
drwxr-xr-x.  23 root   root    680 Jun 12 13:12 run
lrwxrwxrwx.   1 root   root      8 Aug 10  2015 sbin -> usr/sbin
drwxr-xr-x.   2 root   root      6 Jun  9  2014 srv
dr-xr-xr-x.  13 root   root      0 Mar 28 16:35 sys
drwxrwxrwt.  11 root   root   4096 Aug  7 03:49 tmp
drwxr-xr-x.  13 root   root   4096 Aug 10  2015 usr
drwxr-xr-x.  22 root   root   4096 Aug  2 11:40 var
```

Step 7

You can again click the **Retrieve Output...** button to display the Retrieve Output dialog, which lets you select different, or additional, output to retrieve.

Retrieve Output Field Descriptions

Field Name	Description
Standard Output and Standard Error	Retrieve both standard output and standard error information returned by the program.
Standard Output	Retrieve standard output only.
Standard Error	Retrieve standard error output only.
z/OS Job Log	z/OS tasks only; Retrieve information from the z/OS Job Log.
Start Line	Retrieve data beginning at the line indicated. • If a **Start Line** value is not specified in the task instance Details, the default is 1. • If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	Limit the retrieved data to the **Number of Lines** value in the task instance Details. If a **Number of Lines** value is not specified, default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.

Scan Text:	Regex pattern that the Controller will search for a match for in STDOUT/STDERR (or z/OS Job Log). The Controller will include the Number of Lines above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.