

# stonebranch

**Universal Controller 6.5.x**

**Tasks**

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# Universal Tasks



Universal Tasks



Universal Templates

*Overview*

*Creating a Universal Task*

*Setting Up Universal Templates and Tasks*

*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 6.5.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

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 six types of user-defined fields that can appear in the Details of a Universal Task:

- Text
- Integer
- Boolean



- Choice
- Credential
- Script

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.

## Setting Up Universal Templates and Tasks

<b>Step 1</b>	Create a <a href="#">Universal Template</a> , which includes selecting the <a href="#">type of Agent(s)</a> on which Universal Tasks based on this Universal Template can be run, and a <a href="#">variable prefix</a> used for script variables that you want resolved when a Universal Task executes the script in this Universal Template.
<b>Step 2</b>	Enter a script in the Universal Template that all Universal Tasks based on this Universal Template will execute when they are run.
<b>Step 3</b>	After you have entered/selected any other desired values in the <a href="#">Universal Template Details</a> , save the Universal Template.
<b>Step 4</b>	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).
<b>Step 5</b>	Replace the appropriate parameters in the script with the system-assigned variables.
<b>Step 6</b>	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 <a href="#">refresh</a> the Automation Center navigation pane in order to see the new Universal Task type.
<b>Step 7</b>	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.
<b>Step 8</b>	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.
<b>Step 9</b>	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](#)
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  - [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

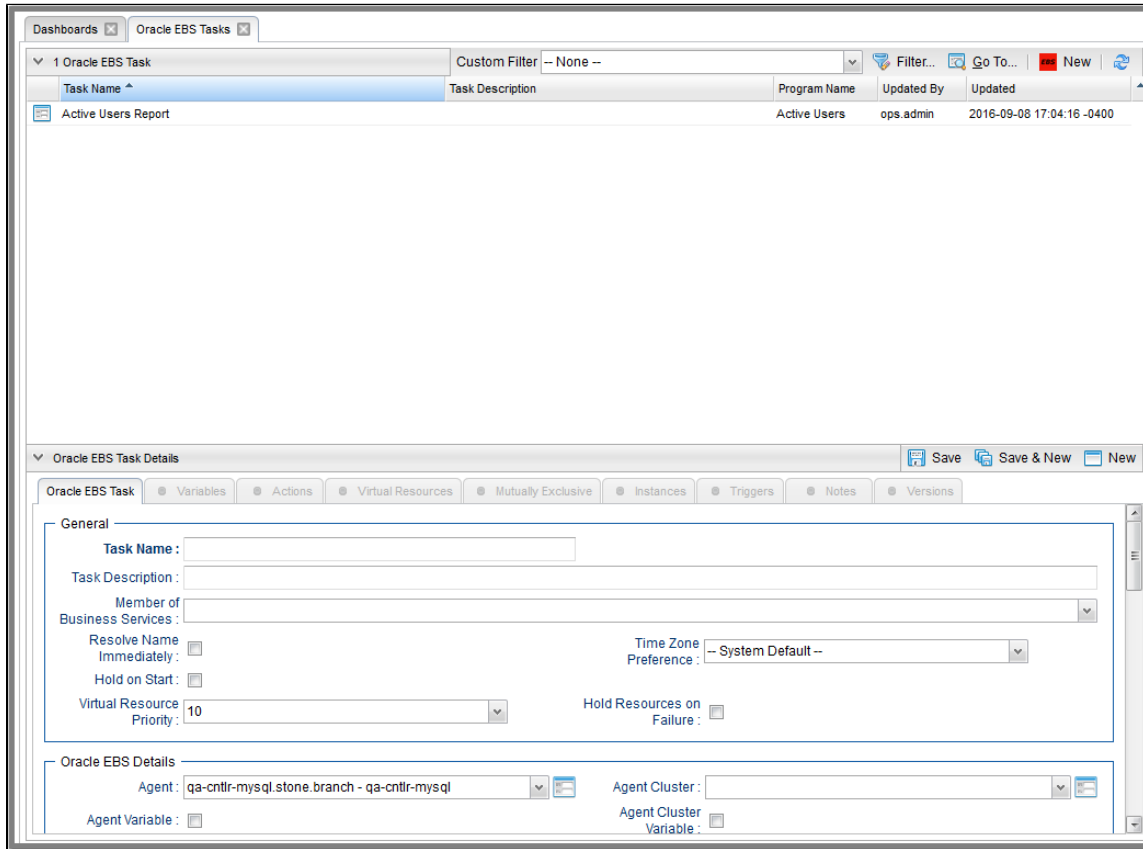
In addition to the system-assigned variables in the [Universal Template](#) script that a Universal task executes, the following [built-in variables](#) can be used in a Universal task to pass data where appropriate:

- [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.



**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.

Oracle EBS Task Details: Active Users Report

Update Launch Task View Parents Copy Delete Refresh Close

Oracle EBS Task Variables Actions Virtual Resources Mutually Exclusive Instances Triggers Notes Versions

**General**

Task Name: Active Users Report Version: 5

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:

**Oracle EBS Details**

Agent: qa-ctrl-mysql.stone.branch - qa-ctrl-mysql Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials: Cluster Broadcast:

Credentials Variable:

Oracle Application Credential: APPS Responsibility Application: SYSADMIN

Responsibility Name: System Administrator Application User: SYSADMIN

Program Name: Active Users User Credentials: credvartest1

Runtime Directory:

Environment Variables:

Name	Value
No items to show.	

Exit Code Processing: Success Exitcode Range

Exit Codes: 0

Automatic Output Retrieval: Standard Output/Error

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:

**Wait/Delay Options**

Wait To Start: -- None --

Delay On Start: -- None --

Workflow Only: -- System Default --

**Time Options**

Late Start:

Late Finish:

Early Finish:




The screenshot shows a web-based form for task configuration. At the top, there are four dropdown menus for 'User Estimated Duration' labeled Day, Hour, Min, and Sec. Below this is a section titled 'Critical Path Options' containing a text input for 'CP Duration' and a dropdown for 'CP Duration Unit' set to 'Minutes'. The next section is 'Workflow Execution Options' with a dropdown for 'Execution Restriction' set to '-- None --'. At the bottom, a toolbar contains seven buttons: 'Update', 'Launch Task', 'View Parents', 'Copy', 'Delete', 'Refresh', and 'Close'.

## Universal Task Details Field Descriptions



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

Field Name	Description
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions</a> tab to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> of the task instance will be resolved immediately at trigger/launch time.


Time Zone Preference	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	<p>If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b>. The task runs when the user <a href="#">releases</a> it.</p>
Hold Reason	<p>Information about why the task will be put on hold when it starts.</p>
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	<p>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.</p>
<b>Details</b>	<p>This section contains assorted detailed information about the task.</p>
Agent	<p>Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a>.</p>
Agent Cluster	<p>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 <a href="#">Agent Clusters</a> for more information.</p>

<p>Agent Variable</p>	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="413 256 1919 415" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>
<p>Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="413 578 1919 760" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>
<p>Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>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.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>
<p>Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="413 1162 1919 1321" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>Cluster Broadcast</p>	<p>Group of Agents, all of which will run this task (compare with Agent Cluster). You can specify a Cluster Broadcast in place 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.</p>



<p>Run with Highest Privileges</p>	<p>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.</p> <p>This option will <b>not</b> 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.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;">  <p><b>Note</b> 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).</p> </div>
<p>(user-defined fields)</p>	<p>These are the user-defined fields in the <a href="#">Universal Template</a> on which this task is based.</p> <p>There are six types of user-defined fields:</p> <ul style="list-style-type: none"> <li>• Text             <ul style="list-style-type: none"> <li>• Normal text (for a single line of text)</li> <li>• Large Text (for multiple lines of text)</li> </ul> </li> <li>• Integer</li> <li>• Boolean</li> <li>• Choice</li> <li>• Credential</li> <li>• Script</li> </ul> <p>Default values and maximum lengths of these fields is specified in the Universal Template.</p>
<p>Runtime Directory</p>	<p>Directory from which the application should be executed. <a href="#">Variables</a> supported.</p>
<p>Interact with Desktop</p>	<p>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).</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;">  <p><b>Note</b> 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 <b>Interact with Desktop</b> option has no effect. Therefore, an interactive application's GUI will not be visible on those platforms.</p> </div>
<p>Create Console</p>	<p>If <a href="#">Interact with Desktop</a> is enabled; Allocates a new console for the process, rather than having it inherit one.</p>

<p>Environment Variables</p>	<p>Allows you to enter environment variables needed by the program to run.</p> <p>To add a variable, click the + icon and enter a <b>Name</b> and <b>Value</b>. To delete a variable, select in the list of variables and click the - icon.</p> <p>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.</p>
<p>Exit Code Processing</p>	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Output Contains Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• Failure Output Contains Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• 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 <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul>
<p>Output Type</p>	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>
<p>Scan Output For</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
<p>Output File (for <a href="#">Exit Code Processing</a>)</p>	<p>Required if <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.</p>
<p>Exit Codes</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>

<p>Automatic Output Retrieval</p>	<p>Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Start Line</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated.</p> <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is -1, data will be retrieved starting at the end of the file.</li> </ul>
<p>Number of Lines</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <a href="#">Retrieve Output Default Number Of Lines</a> Universal Controller system property.</p>
<p>Scan Text</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <b>Number of Lines</b> above and below the first line matched.</p> <p>if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.</p>
<p>Output File (for <a href="#">Automatic Output Retrieval</a>)</p>	<p>Required if <a href="#">Automatic Output Retrieval</a> = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.</p>
<p><b>Retry Options</b></p>	<p>This section contains specifications for retrying the task.</p>
<p>Retry Exit Codes</p>	<p>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 <a href="#">Exit Codes</a> field. <a href="#">Maximum Retries</a> must be greater than 0.</p> <p>If this field is empty, any exit code potentially will cause a retry.</p>

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

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- System Default -- Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>




<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>
<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>

Early Finish Nth Amount	If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.
Early Finish Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.  Options: <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> Default is Minutes.
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.
<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.

<p><b>Delete</b></p>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>										
<p><b>Refresh</b></p>	<p>Refreshes any dynamic data displayed in the Details.</p>										
<p><b>Close</b></p>	<p>For pop-up view only; closes the pop-up view of this task.</p>										
<p><b>Tabs</b></p>	<p>This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.</p>										
<p><b>Variables</b></p>	<p>Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.</p>										
<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>Task instance status</li> <li>Exit codes</li> <li>Late start</li> <li>Late finish</li> <li>Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="369 1003 1957 1336"> <tr> <td data-bbox="369 1003 558 1052"><b>Abort Action</b></td> <td data-bbox="558 1003 1957 1052">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="369 1052 558 1125"><b>Email Notification</b></td> <td data-bbox="558 1052 1957 1125">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="369 1125 558 1198"><b>Set Variable</b></td> <td data-bbox="558 1125 1957 1198">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="369 1198 558 1271"><b>SNMP Notification</b></td> <td data-bbox="558 1198 1957 1271">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="369 1271 558 1336"><b>System Operation</b></td> <td data-bbox="558 1271 1957 1336">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .										
<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .										
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<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<p><b>Virtual Resources</b></p>	<p>Lists all <a href="#">Virtual Resources</a> to which this task is assigned.</p>										

<b>Mutually Exclusive</b>	Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.
<b>Instances</b>	Lists all instances of the task.
<b>Triggers</b>	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 <a href="#">Triggers</a> .
<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.
<b>Versions</b>	Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a> .

## 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](#).

Oracle EBS Task Instance Details: Active Users Report

Update Force Finish Re-run Retrieve Output... Delete Refresh Close

Oracle EBS Task Instance Virtual Resources Exclusive Requests Output Notes

General

Task Name: Active Users Report Version: 5

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:

Status

Status: Success Exit Code: 2

Status Description:

Operational Memo:

Trigger Time: Launch Time: 2017-06-01 14:06:53 -0400

Queued Time: 2017-06-01 14:06:53 -0400

Start Time: 2017-06-01 14:06:53 -0400 End Time: 2017-06-01 14:06:54 -0400

Duration: CPU Time: 98

Process ID: 26407

Oracle EBS Details

Agent: qa-cntrl-mysql.stone.branch - qa-cntrl-mysql Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials: Credentials Variable:

Oracle Application Credential: APPS Responsibility Application: SYSADMIN

Responsibility Name: System Administrator Application User: SYSADMIN

Program Name: Active Users User Credentials: credvarfest1

Runtime Directory:

Environment Variables:

Name	Value
No items to show.	

Exit Code Processing: Success Exitcode Range

Exit Codes: 0

Automatic Output Retrieval: Standard Output/Error

Start Line: 1 Number of Lines: 100

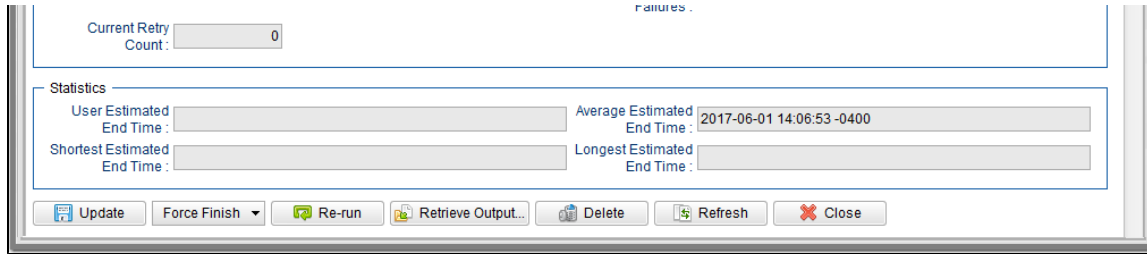
Scan Text:

Retry Options

Retry Exit Codes:

Maximum Retries: 0 Retry Indefinitely:

Retry Interval (Seconds): 60 Suppress Intermediate Failure:



## 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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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: <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.




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	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
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.
<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.
<b>Universal Details</b>	This section contains assorted detailed information about the task instance.
Agent	Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a> .

<p>Agent Variable</p>	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>
<p>Agent Cluster</p>	<p>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 <a href="#">Agent Clusters</a> for more information.</p>
<p>Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>
<p>Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>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.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>
<p>Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>

<p>Run with Highest Privileges</p>	<p>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.</p> <p>This option will <b>not</b> 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.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;">  <p><b>Note</b> 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).</p> </div>
<p>(user-defined fields)</p>	<p>These are user-defined fields in the <a href="#">Universal Template</a> on which this task is based.</p> <p>There are six types of user-defined fields:</p> <ul style="list-style-type: none"> <li>• Text             <ul style="list-style-type: none"> <li>• Normal text (for a single line of text)</li> <li>• Large Text (for multiple lines of text)</li> </ul> </li> <li>• Integer</li> <li>• Boolean</li> <li>• Choice</li> <li>• Credential</li> <li>• Script</li> </ul>
<p>Runtime Directory</p>	<p>Directory from which the application should be executed. <a href="#">Variables</a> supported.</p>
<p>Interact with Desktop</p>	<p>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).</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;">  <p><b>Note</b> 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 <b>Interact with Desktop</b> option has no effect. Therefore, an interactive application's GUI will not be visible on those platforms.</p> </div>
<p>Create Console</p>	<p>If <a href="#">Interact with Desktop</a> is enabled; Allocates a new console for the process, rather than having it inherit one.</p>
<p>Environment Variables</p>	<p>Allows you to enter environment variables needed by the program to run.</p> <p>To add a variable, click the + icon and enter a <b>Name</b> and <b>Value</b>. To delete a variable, select in the list of variables and click the - icon.</p> <p>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.</p>

Exit Code Processing	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Output Contains Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• Failure Output Contains Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• 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 <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul>
Output Type	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>
Exit Codes	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
Scan Output For	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
Output File (for <a href="#">Exit Code Processing</a> )	<p>Required if <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.</p>

<p>Automatic Output Retrieval</p>	<p>Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="background-color: #ffffcc; padding: 5px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Start Line</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated.</p> <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is -1, data will be retrieved starting at the end of the file.</li> </ul>
<p>Number of Lines</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <a href="#">Retrieve Output Default Number Of Lines</a> Universal Controller system property.</p>
<p>Scan Text</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <b>Number of Lines</b> above and below the first line matched.</p> <p>if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.</p>
<p>Output File (for <a href="#">Automatic Output Retrieval</a>)</p>	<p>Required if <a href="#">Automatic Output Retrieval</a> = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.</p>
<p><b>Retry Options</b></p>	<p>This section contains specifications for retrying the task.</p>
<p>Retry Exit Codes</p>	<p>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 <a href="#">Exit Codes</a> field. <a href="#">Maximum Retries</a> must be greater than 0.</p> <p>If this field is empty, any exit code potentially will cause a retry.</p>

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 <a href="#">Maximum Retries</a> 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 <a href="#">Failed status</a> , indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made: <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
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.
<b>Wait / Delay Options</b>	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: <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Wait Time	If <a href="#">Wait To Start</a> = Time or Relative Time; Number of hours and minutes to wait before starting the task.

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>



Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.
Late Finish Type	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Late Finish Time	If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Late Finish Nth Amount	If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.

Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>

<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>

Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
Shortest Estimated End Time	System-supplied; shortest 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.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .

<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Retrieve Output</b>	See <a href="#">Retrieving Output</a> .
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Output</b>	Displays output generated from the process, if any, based on specifications provided by the user in the <a href="#">Automatic Output Retrieval</a> fields in the task Details.  If automatic output retrieval was not available or was not selected, output can be obtained by clicking the <a href="#">Retrieve Output</a> button.
<b>Notes</b>	Lists all <a href="#">notes</a> 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
- Task and Task Instance Details Fields
- 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, 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.
Email Monitor	Monitor a Mailbox Folder for one or more specific statuses.
Task Monitor	Monitor another task or tasks for one or more specific statuses.
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.
FTP 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.
Application Control	Execute a start, stop, or query command against an application in the Controller network.
Web Service	Invokes a Web Service running on any application server.
Universal	Execute a user-defined script in a <a href="#">Universal Template</a> 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

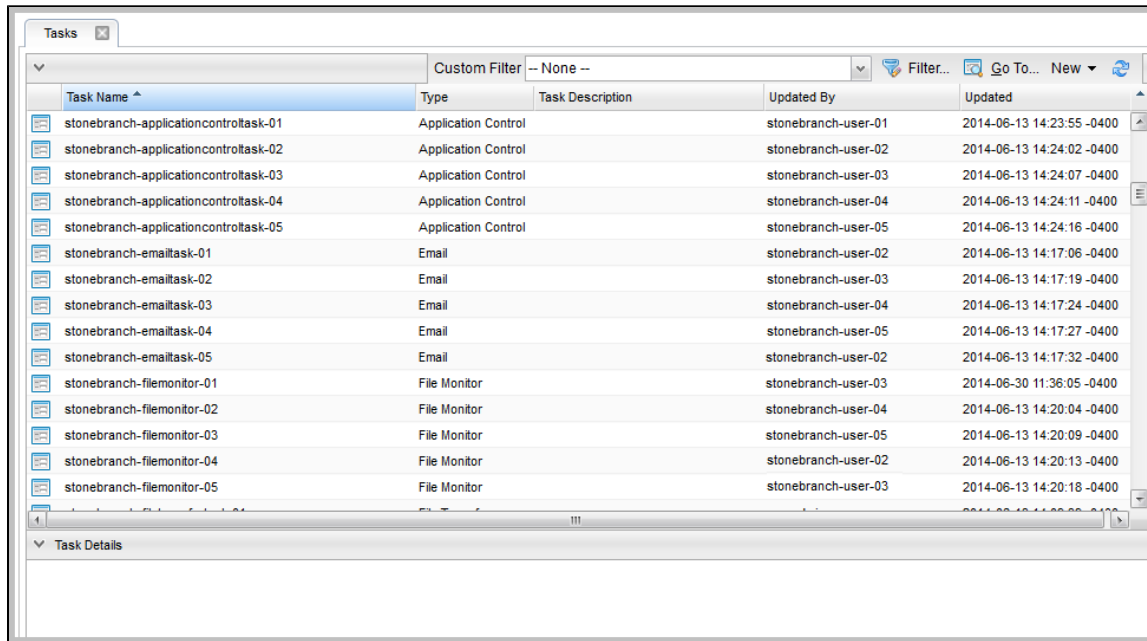
There are multiple ways to create a task:

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.



## 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:

The screenshot displays the 'Linux/Unix Tasks' dashboard. At the top, there is a navigation bar with 'Dashboards' and 'Linux/Unix Tasks' tabs. Below this is a filter section with 'Custom Filter -- None --' and a 'Filter...' button. The main area contains a table with the following data:

Task Name	Task Description	Command or Script	Updated By	Updated
stonebranch-linuxunixtask-01		Command	ops.admin	2017-05-12 10:21:14 -0400
stonebranch-linuxunixtask-02		Command	ops.admin	2016-09-29 16:41:57 -0400
stonebranch-linuxunixtask-03		Command	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-linuxunixtask-04		Command	ops.admin	2016-09-29 17:35:32 -0400
stonebranch-linuxunixtask-05		Command	ops.admin	2016-05-24 14:29:09 -0400

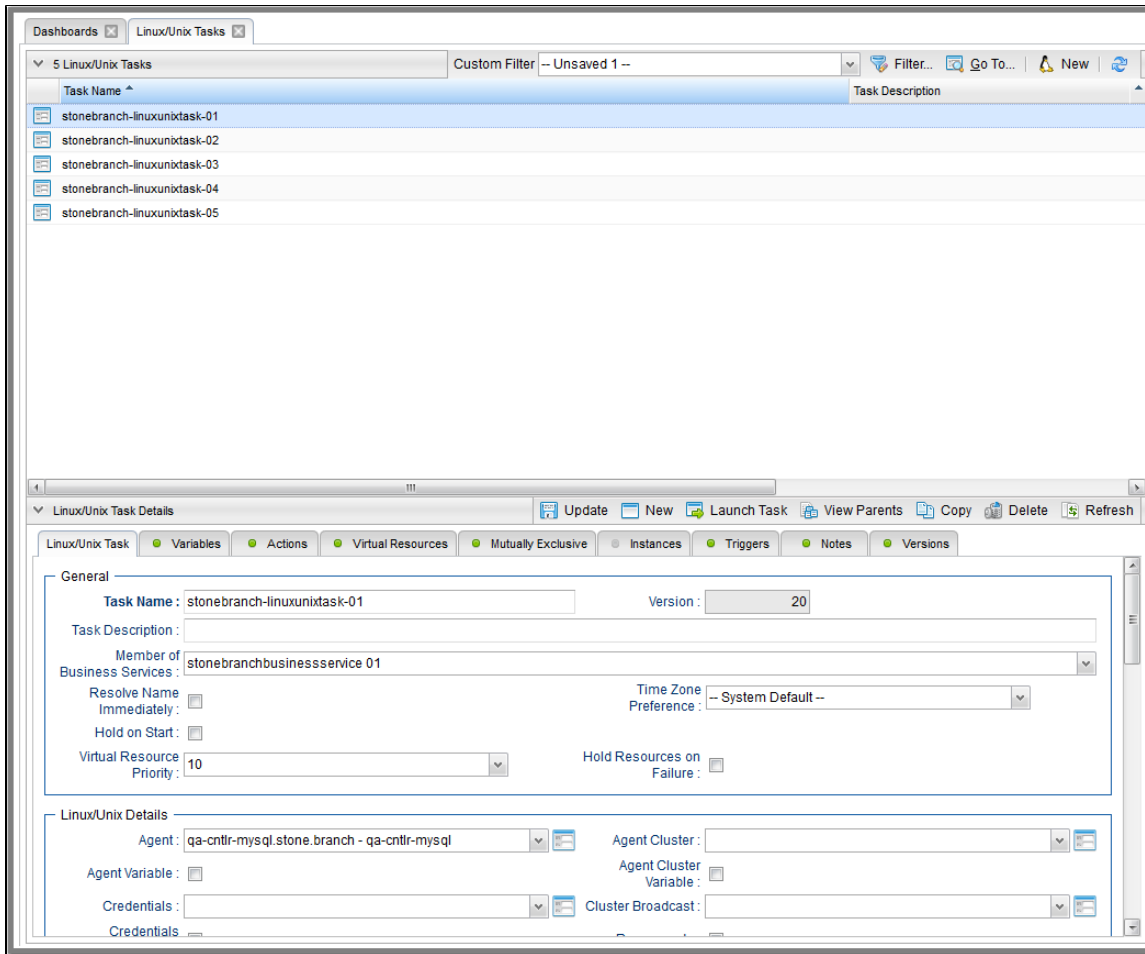
Below the table is the 'Linux/Unix Task Details' section, which includes tabs for 'Linux/Unix Task', 'Variables', 'Actions', 'Virtual Resources', 'Mutually Exclusive', 'Instances', 'Triggers', 'Notes', and 'Versions'. The 'General' tab is active, showing fields for 'Task Name', 'Task Description', 'Member of Business Services', 'Resolve Name Immediately', 'Hold on Start', 'Virtual Resource Priority' (set to 10), 'Time Zone Preference' (set to System Default), and 'Hold Resources on Failure'. The 'Linux/Unix Details' section includes fields for 'Agent', 'Agent Cluster', 'Agent Variable', and 'Agent Cluster Variable'.

## <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.



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.

Linux/Unix Task Details: stonebranch-linuxunixtask-01
Update Launch Task View Parents Copy Delete Refresh Close

Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

**General**

Task Name:  Version:

Task Description:

Member of Business Services:

Resolve Name Immediately:  Time Zone Preference:

Hold on Start:

Virtual Resource Priority:  Hold Resources on Failure:

**Linux/Unix Details**

Agent:  Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials:  Cluster Broadcast:

Credentials Variable:  Run as sudo:

Command or Script:

Command:

Parameters:

Runtime Directory:

Environment Variables:

Name	Value
No items to show.	

Exit Code Processing:

Exit Codes:

Automatic Output Retrieval:

**Retry Options**

Retry Exit Codes:

Maximum Retries:  Retry Indefinitely:

Retry Interval (Seconds):  Suppress Intermediate Failures:

**Wait/Delay Options**

Wait To Start:

Delay On Start:

Workflow Only:

**Time Options**

Late Start:

Late Finish:

Early Finish:

User Estimated  Day  Hour  Min  Sec

Duration: [dropdown] [dropdown] [dropdown] [dropdown]

Critical Path Options

CP Duration: [text input] CP Duration Unit: Minutes [dropdown]

Workflow Execution Options

Execution Restriction: -- None -- [dropdown]

[Update] [Launch Task] [View Parents] [Copy] [Delete] [Refresh] [Close]

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](#).



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

Linux/Unix Task Instance

 Virtual Resources
  Exclusive Requests
  Output
  Notes

**General**

Instance Name:  Reference Id:

Task:  Invoked By:

Task Description:

Member of Business Services:  Execution User:

Calendar:  Time Zone Preference:

Virtual Resource Priority:  Hold Resources on Failure:

**Status**

Status:  Exit Code:

Status Description:

Operational Memo:

Evaluation Time:

Trigger Time:  Launch Time:

Queued Time:

Start Time:  End Time:

Duration:  CPU Time:

Process ID:

**Linux/Unix Details**

Agent:  Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials:  Credentials Variable:

Command or Script:  Run as sudo:

Command:

Parameters:

Runtime Directory:

Environment Variables:

Name	Value
No items to show.	

Exit Code Processing:

Exit Codes:

Automatic Output Retrieval:

**Retry Options**

Retry Exit Codes:

Maximum Retries:  Retry Indefinitely:

Retry Interval (Seconds):   
 Current Retry Count:   
 Suppress Intermediate Failures:   
 Next Retry Time:   
 Statistics  
 User Estimated End Time:   
 Average Estimated End Time:   
 Shortest Estimated End Time:   
 Longest 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](#).

## Task and Task Instance Details Fields

The following table identifies all fields that appear in task and/or task instance Details of one or more task type(s).

Unless otherwise indicated, each field appears in the Details for both tasks and task instances.

Each field name is a link to a description of that field.



**Note**

Links within these field descriptions are active only when viewing the field descriptions table for a specific [task type](#).

Field Name	Task only	Task Instance only	Application Control	Email	Email Monitor	File Monitor	File Transfer (FTP/SFTP)	File Transfer (UDM)	FTP File Monitor	Universal Command	Linux Unix	Manual	PeopleSoft	SAP	SQL	Stored Procedure	Syst... Moni
Action					✓												
After Date			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

After Time			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Agent						✓	✓		✓		✓							✓
Agent Cluster						✓	✓		✓		✓							✓
Agent Cluster Variable						✓	✓		✓									✓
Agent Variable						✓	✓		✓		✓							✓
Append Destination Open Option							✓											
Append UDM Options									✓									
Append Source Open Options								✓										
Application			✓															
Auto Cleanup																	✓	✓
Auto Cleanup																		
Auto Layout																		
Automatic Output File													✓					
Automatic Output Retrieval										✓	✓		✓	✓				
Auto-Restart Option																		
Average Estimated End Time		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Average Instance Time			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BCC				✓														
Before Date			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Before Time			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Begin Marker					✓												
Body				✓													
Body					✓												
Body Filter					✓												
Body Variable					✓												
By Percentage (+/-)						✓											
By Scale (File Monitor)						✓											
By Scale (System Monitor)																	✓
By Size (+/-)						✓											
Calculate Critical Path																	
Case Sensitive					✓												
Case Sensitive Content					✓												
CC				✓													
Cc					✓												
Cc Filter					✓												
Cluster Broadcast	✓					✓	✓		✓		✓						✓
Codepage								✓									
Column Name															✓	✓	
Command										✓	✓						

Command (Application)			✓														
Command (PeopleSoft)													✓				
Command (FTP)							✓										
Command Group															✓		
Command or Script									✓	✓							
Compress								✓									
Content Filter															✓		
Content Value					✓												
CP Duration			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CP Duration (Resolved)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CP Duration Unit			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CPU Time	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Credentials						✓	✓			✓		✓				✓	✓
Credentials					✓												
Credentials																	
Credentials Variable					✓	✓	✓			✓		✓				✓	✓
Credentials Variable																	
Current Retry Count	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Critical	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Database Connection																✓	✓

Database Connection Variable															✓	✓	
Date List			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Default Calendar																	
Delay Duration			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Delay Duration In Seconds			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Delay On Start			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Delete Override JCL																	
Destination Credentials								✓									
Destination Credentials Variable								✓									
Destination Filename(s)								✓									
Destination File System								✓									
Destination UDM Agent								✓									
Destination UDM Agent Option								✓									
Distribution Status		✓											✓				
Duration		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Duration																	
Early Finish			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Early Finish Day Constraint			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Early Finish Duration			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Early Finish Nth Amount			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Early Finish Time			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Early Finish Type			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Email Connection (Outgoing)				✓													
Email Connection (Incoming)					✓												
Email Connection Variable					✓												
Email Content Processing					✓												
Email Template				✓													
Encrypt								✓									
End Marker					✓												
End Time		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Environment Variables											✓	✓					
Evaluation Time		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Execution Restriction			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Execution User		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Exit Code		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Exit Code Processing								✓		✓	✓		✓	✓			
Exit Codes								✓		✓	✓		✓	✓			
Exit Codes (SQL)																✓	

Exit Codes (Stored Procedure)															✓			
File Creation Option								✓										
File Owner						✓												
File Transfer Type							✓	✓										
Filter Logic					✓													
Finished Early		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Finished Late		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
First Time Ran			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
From [+/-]hh:mm:																		
From					✓													
From Filter					✓													
FTP Credentials							✓		✓									
FTP Credentials Variable							✓		✓									
Generated			✓															
Highest Instance Time			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hold on Start	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hold Reason	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hold Resources on Failure			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
HTTP Authentication																		
HTTP Headers																		



HTTP Method																	
HTTP Payload Type																	
HTTP Version																	
Include Read Mail				✓													
Instance Name	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Interact with Desktop																	
Invoked by	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
JCL Location																	
JCL Override Location																	
Job Card (z/OS only)						✓		✓									
Last Instance Duration		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Last Override Deletion																	
Last Time Ran		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Late Finish		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Late Finish Day Constraint		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Late Finish Duration		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Late Finish Nth Amount		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Late Finish Time		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Late Finish Type		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Late Start		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Late Start Day Constraint			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Late Start Duration			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Late Start Nth Amount			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Late Start Time			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Late Start Type			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Launch Time		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
List Format Options									✓								
Local Filename							✓										
Longest Estimated End Time		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lowest Instance Time			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mailbox Folder					✓												
Mailbox Folder Destination					✓												
Main Job Name													✓				
Main Schedule Name													✓				
Maximum Files						✓											
Maximum Polls									✓								
Maximum Retries							✓	✓		✓	✓		✓	✓	✓	✓	
Maximum Rows																✓	✓

Member of Business Services			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
MIME Type																	
Monitor File(s)						✔											
Monitoring Type																	
Monitor Type (File Monitor)						✔											
Monitor Type (FTP File Monitor)									✔								
Monitor Type (System Monitor)																	✔
Mount Points or Drives																	✔
Move To Trash						✔											
Network Fault Tolerant									✔								
Next Retry Time		✔					✔	✔		✔	✔		✔	✔	✔	✔	
New Jobclass																	
New Jobname																	
New Msgclass																	
Number of Instances			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Number of Lines										✔	✔		✔	✔			
Number of Lines (z/OS)																	
Number of Override Instances																	

Operational Memo		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Operator															✓	✓	
Operator																	
Output Destination Format													✓				
Output Destination String													✓				
Output Destination Type													✓				
Output File (for Exit Code Processing)							✓		✓	✓		✓	✓				
Output File (for Automatic Output Retrieval)									✓	✓		✓	✓				
Output Type							✓		✓	✓		✓	✓				
Output Type																	
Override Instance Count for Deletion																	
Parameter Position																✓	
Parameters											✓						
Path Expression																	
Payload																	
Payload Source																	
PeopleSoft Connection													✓				

PeopleSoft Connection Variable													✓				
PeopleSoft Credentials													✓				
PeopleSoft Credentials Variable													✓				
Poll Interval (Seconds)								✓									
Print Application Message													✓				
Print Distribution List													✓				
Print Job Tree													✓				
Print Parameter List													✓				
Print System Message													✓				
Procedure Library																	
Process File Name													✓				
Process ID		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Process Instance		✓											✓				
Process Job/Name													✓				
Process Type													✓				
Projected End Time		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Protocol																	
Queued Time		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Received After					✓												
Received After Date					✓												
Received After Offset					✓												
Received Before					✓												
Received Before Date					✓												
Received Before Offset					✓												
Received On					✓												
Received On Date					✓												
Received Restriction					✓												
Recursive						✓											
Reference Id	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Remote Filename (File Transfer)							✓										
Remote Filename (FTP File Monitor)									✓								
Remote Server (File Transfer)							✓										
Remote Server (FTP File Monitor)									✓								
Reply-To				✓													
Report													✓				
Resolve Name Immediately	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



SAP Connection Variable																				✓
SAP Credentials																				✓
SAP Credentials Variable																				✓
SAP Language																				✓
Scan Forward					✓															
Scan Output For							✓		✓	✓	✓		✓							✓
Scan Text (File Monitor)						✓														
Scan Text (for Automatic Output Retrieval)									✓	✓		✓								✓
Scan Text (for Automatic Output Retrieval - z/OS)																				
Schedule ID																				
Script													✓							
Script File									✓											
Script Options									✓											
Sent After				✓																
Sent After Date				✓																
Sent After Offset				✓																
Sent Before				✓																
Sent Before Date				✓																



Sent Before Offset						✓												
Sent On						✓												
Sent On Date						✓												
Sent Restriction						✓												
Server Name																		✓
Server Type																		✓
Shortest Estimated End Time		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Show/Hide Skipped Tasks																		
SOAP Payload Type																		
SOAP Version																		
Source Credentials																		✓
Source Credentials Variable																		✓
Source Filename(s)																		✓
Source File System																		✓
Source UDM Agent																		✓
Source UDM Agent Option																		✓
SQL Command																		✓
Stable (seconds)																		✓
Stable (Seconds) - FTP																		✓

Started Late		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Start Line										✓	✓		✓	✓			
Start Line (z/OS)																	
Start Time		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Status		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Status Codes																	
Status Description		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Status To Monitor																	
Stored Procedure Name																✓	
Strategy																	
Subcommands (z/OS only)							✓										
Subject				✓													
Subject					✓												
Subject Filter					✓												
Suppress Intermediate Failures		✓					✓	✓		✓	✓		✓	✓	✓	✓	
Task		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Task Description			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Task Name	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Task Name Condition																	
Task Name Contains																	

Task Name Ends With																		
Task Name Starts With																		
Task to Monitor																		
Task Type to Monitor																		
Time in Seconds																		
Time Limit					✓													
Time Limit Unit					✓													
Timeout																		
Timer Type																		
Time Scope																		
Time Zone Preference			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
To				✓														
To Scale							✓											
To Size							✓											
To [+/-]hh:mm:																		
To					✓													
To Filter					✓													
Transfer Mode								✓		✓								
Transfer Protocol								✓		✓								
Transfer Type (FTP/SFTP)								✓										
Transfer Type (UDM)									✓									

Trigger Time		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trigger on Existence						✓											
Trim Trailing Spaces								✓									
Universal Command Agent										✓							
Universal Command Agent Option										✓							
Universal Command Credentials										✓							
Universal Command Credentials Variable										✓							
Universal Command Options										✓							
URL																	
URL Query Parameters																	
Use Advanced Criteria						✓											
Use JCL Override Library																	
User Estimated Duration	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
User Estimated End Time		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Utility Agent								✓		✓						✓	
Utility Agent Cluster								✓		✓				✓			

Utility Agent Variable								✓		✓				✓			
Utility Credentials								✓		✓				✓			
Utility Credentials Variable								✓		✓				✓			
Value															✓	✓	
Value																	
Value																	
Value Condition																	
Value Monitor Type																	
Variable To Monitor Type																	
Version	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Virtual Resource Priority			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wait Day Constraint			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wait Duration			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wait Duration In Seconds			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wait For Output										✓	✓		✓	✓			
Wait Time			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wait To Start			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wait Until Satisfied									✓								
Wait Until Time																	

Wait Until Time (status)																	
Workflow Name Condition																	
Workflow Name Contains																	
Workflow Name Ends With																	
Workflow Name Equals																	
Workflow Name Starts With																	
Workflow Only																	

## 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

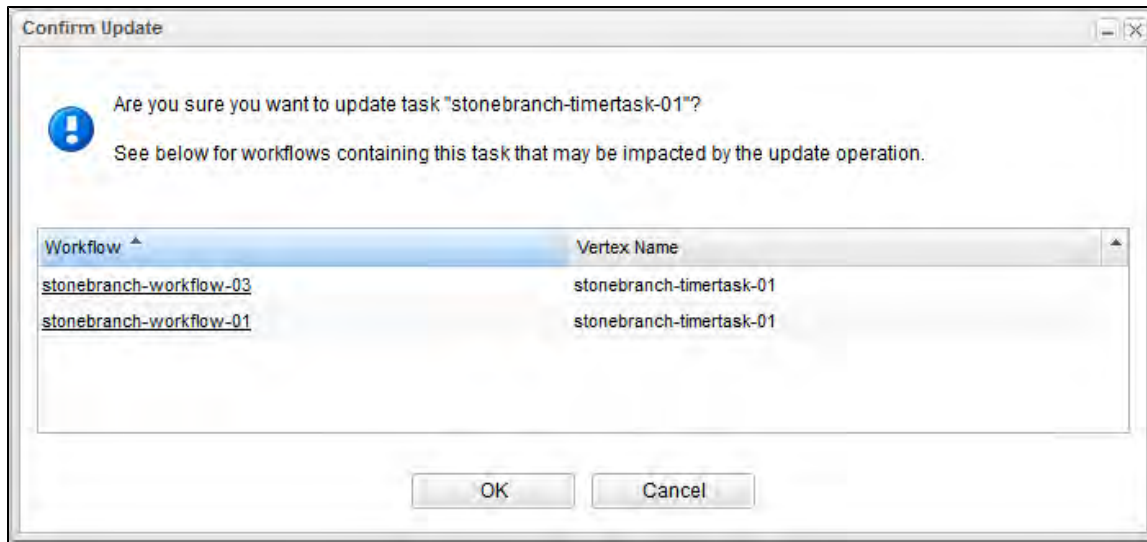
You can enter a URL in a user-defined field in any task Details. Format: <http://>, <https://>, and <ftp://> are supported. For example: <https://www.stonebranch.com>.

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**.



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

It displays, by default, two columns of information:

<b>Workflow</b>	Name of a Workflow that contain the task.
<b>Vertex Name</b>	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](#):

<b>Vertex Id</b>	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:

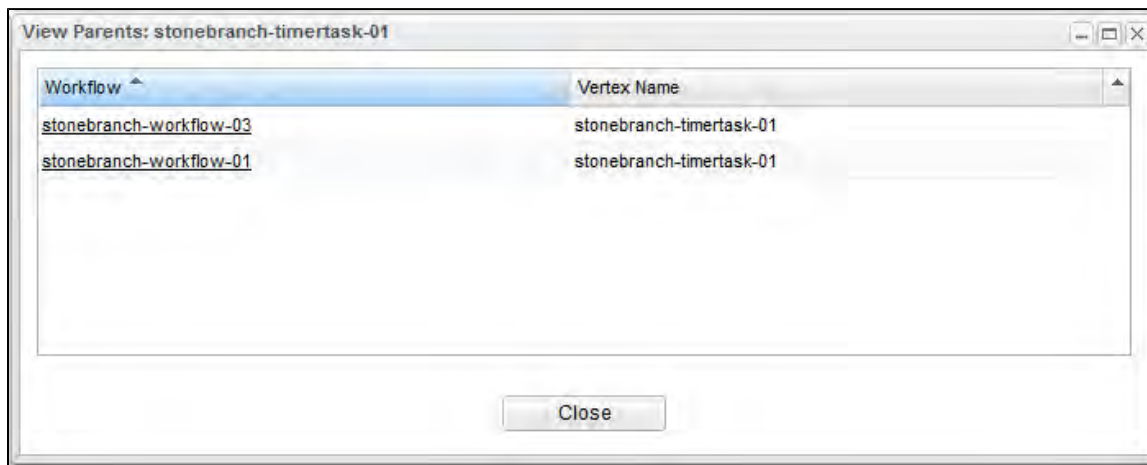
- Specified in an enabled Trigger.
- The only task specified in a disabled Trigger.

## 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:





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

<b>Workflow</b>	Name of a Workflow that contain the task.
<b>Vertex Name</b>	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](#):

<b>Vertex Id</b>	ID of the <a href="#">task vertex</a> 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](#).

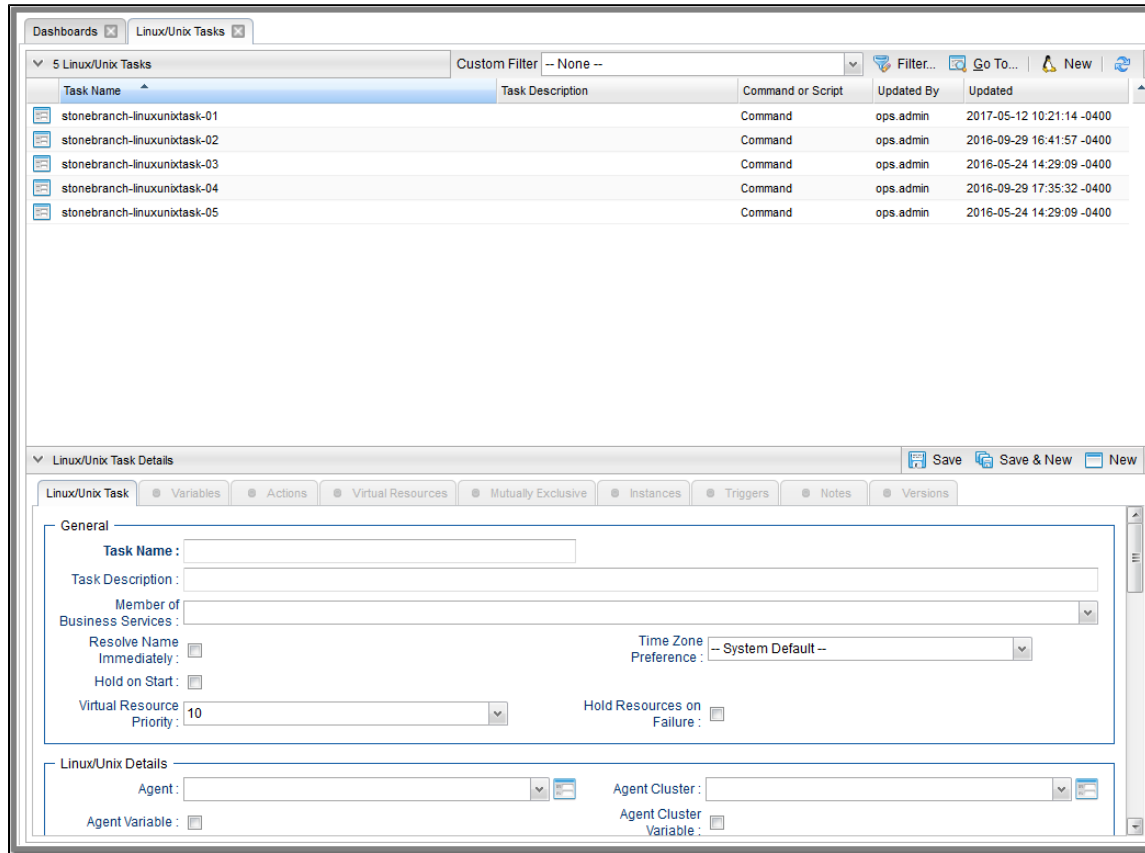
### Built-In Variables

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.



**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.

Linux/Unix Task Details: stonebranch-linuxunixtask-01
Update Launch Task View Parents Copy Delete Refresh Close

Linux/Unix Task
Variables Actions Virtual Resources Mutually Exclusive Instances Triggers Notes Versions

**General**

Task Name:  Version:

Task Description:

Member of Business Services:

Resolve Name Immediately:  Time Zone Preference:

Hold on Start:

Virtual Resource Priority:  Hold Resources on Failure:

**Linux/Unix Details**

Agent:  Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials:  Cluster Broadcast:

Credentials Variable:  Run as sudo:

Command or Script:

Command:

Parameters:

Runtime Directory:

Environment Variables:

Name	Value
No items to show.	

Exit Code Processing:

Exit Codes:

Automatic Output Retrieval:

**Retry Options**

Retry Exit Codes:

Maximum Retries:  Retry Indefinitely:

Retry Interval (Seconds):  Suppress Intermediate Failures:

**Wait/Delay Options**

Wait To Start:

Delay On Start:

Workflow Only:

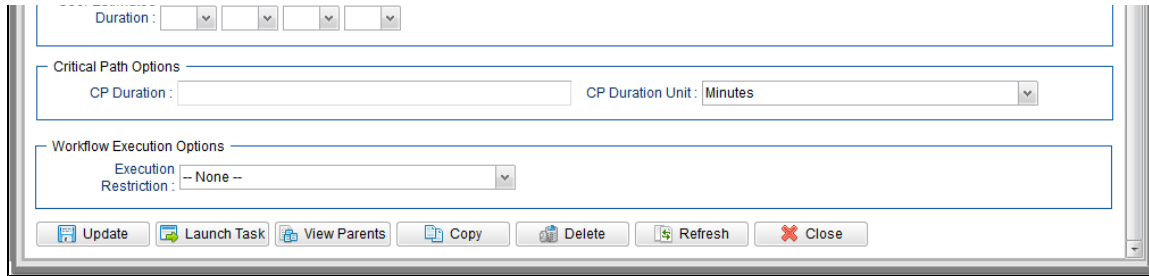
**Time Options**

Late Start:

Late Finish:

Early Finish:

User Estimated Day Hour Min Sec






## 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
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions tab</a> to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> of the task instance will be resolved immediately at trigger/launch time.


Time Zone Preference	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	<p>If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b>. The task runs when the user <a href="#">releases</a> it.</p>
Hold Reason	<p>Information about why the task will be put on hold when it starts.</p>
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	<p>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.</p>
<b>Linux/Unix Details</b>	<p>This section contains assorted detailed information about the task.</p>
Agent	<p>Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a>.</p>
Agent Cluster	<p>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 <a href="#">Agent Clusters</a> for more information.</p>

<p>Agent Variable</p>	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>
<p>Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>
<p>Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>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.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>
<p>Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>Cluster Broadcast</p>	<p>Group of Agents, all of which will run this task (compare with Agent Cluster). You can specify a Cluster Broadcast in place 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.</p>



Run as sudo	<p>If <a href="#">Command or Script</a> = Command; Run the command as sudo (superuser do).</p> <p>The Run as sudo option prefixes the command with either:</p> <ul style="list-style-type: none"> <li>• <b>sudo</b> (if a credential is not specified; that is, the command is run as root)</li> <li>• <b>sudo -u userid</b> (if a credential is specified, where userid = the Runtime User from the supplied credential)</li> </ul> <p>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 <code>sudoers</code> file. Please refer to your local security policy and documentation for updating the <code>sudoers</code> file.</p>
Command or Script	<p>Specifies whether a single command or a script is being executed.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Command (default)</li> <li>• Script</li> </ul> <p>If the <a href="#">Windows/Linux Scripts Permitted</a> Universal Controller system property is set to false:</p> <ul style="list-style-type: none"> <li>• The Command or Script field is set to Command and is read-only.</li> <li>• If the Command or Script field is set to Script, the field becomes modifiable so that you can change it to Command.</li> </ul>
Script	<p>Required if <a href="#">Command or Script</a> = Script; Name of the <code>script</code> in the Controller database that will be executed by this task.</p> <div data-bbox="411 862 1919 966" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.</p> </div>
Command	<p>Required if <a href="#">Command or Script</a> = Command; Command being executed on the remote machine. <a href="#">Variables</a> supported.</p>
Parameters	<p>Any arguments needed by the program to execute properly. <a href="#">Variables</a> supported.</p>
Runtime Directory	<p>Directory from which the application should be executed. <a href="#">Variables</a> supported.</p>
Environment Variables	<p>Allows you to enter environment variables needed by the program to run.</p> <p>To add a variable, click the + icon and enter a <b>Name</b> and <b>Value</b>. To delete a variable, select in the list of variables and click the - icon.</p> <p>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.</p>

Exit Code Processing	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Output Contains Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• Failure Output Contains Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• 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 <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul>
Output Type	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>
Scan Output For	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
Output File (for <a href="#">Exit Code Processing</a> )	<p>Required if <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.</p>
Exit Codes	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>

<p>Automatic Output Retrieval</p>	<p>Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Wait For Output</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Specification that the task should wait for the requested output before completing.</p>
<p>Start Line</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated.</p> <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is -1, data will be retrieved starting at the end of the file.</li> </ul>
<p>Number of Lines</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <a href="#">Retrieve Output Default Number Of Lines</a> Universal Controller system property.</p>
<p>Scan Text</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <b>Number of Lines</b> above and below the first line matched.</p> <p>if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.</p>
<p>Output File (for Automatic Output Retrieval)</p>	<p>Required if <a href="#">Automatic Output Retrieval</a> = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.</p>
<p><b>Retry Options</b></p>	<p>This section contains specifications for retrying the task.</p>

<p>Retry Exit Codes</p>	<p>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 <a href="#">Exit Codes</a> field. <a href="#">Maximum Retries</a> must be greater than 0.</p> <p>If this field is empty, any exit code potentially will cause a retry.</p>
<p>Maximum Retries</p>	<p>User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.</p>
<p>Retry Indefinitely</p>	<p>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 <a href="#">Maximum Retries</a> field.</p>
<p>Retry Interval (Seconds)</p>	<p>User-defined; number of seconds between each retry.</p>
<p>Suppress Intermediate Failures</p>	<p>User-defined; If the task instance is in the <a href="#">Failed status</a>, indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made:</p> <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
<p><b>Wait / Delay Options</b></p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <a href="#">Wait To Start</a> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- System Default -- Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>




<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>
<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>

Early Finish Nth Amount	If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.
Early Finish Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.  Options: <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> Default is Minutes.
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.
<b>Launch Task</b>	Manually launches the task.

<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.

<b>Actions</b>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="373 451 1961 787"> <tr> <td data-bbox="373 451 558 500"><b>Abort Action</b></td> <td data-bbox="558 451 1961 500">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="373 500 558 573"><b>Email Notification</b></td> <td data-bbox="558 500 1961 573">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="373 573 558 646"><b>Set Variable</b></td> <td data-bbox="558 573 1961 646">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="373 646 558 719"><b>SNMP Notification</b></td> <td data-bbox="558 646 1961 719">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="373 719 558 787"><b>System Operation</b></td> <td data-bbox="558 719 1961 787">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
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<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.										
<b>Mutually Exclusive</b>	Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.										
<b>Instances</b>	Lists all instances of the task.										
<b>Triggers</b>	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 <a href="#">Triggers</a> .										
<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.										
<b>Versions</b>	Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a> .										

## 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

Linux/Unix Task Instance

 Virtual Resources
  Exclusive Requests
  Output
  Notes

**General**

Instance Name:  Reference Id:

Task:  Invoked By:

Task Description:

Member of Business Services:  Execution User:

Calendar:  Time Zone Preference:

Virtual Resource Priority:  Hold Resources on Failure:

**Status**

Status:  Exit Code:

Status Description:

Operational Memo:

Evaluation Time:

Trigger Time:  Launch Time:

Queued Time:

Start Time:  End Time:

Duration:  CPU Time:

Process ID:

**Linux/Unix Details**

Agent:  Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials:  Credentials Variable:

Command or Script:  Run as sudo:

Command:

Parameters:

Runtime Directory:

Environment Variables:

Name	Value
No items to show.	

Exit Code Processing:

Exit Codes:

Automatic Output Retrieval:

**Retry Options**

Retry Exit Codes:

Maximum Retries:  Retry Indefinitely:






## 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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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: <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.


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	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
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.
<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.
<b>Linux/Unix Details</b>	This section contains assorted detailed information about the task instance.
Agent	Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a> .

Agent Variable	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>
Agent Cluster	<p>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 <a href="#">Agent Clusters</a> for more information.</p>
Agent Cluster Variable	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>
Credentials	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>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.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>
Credentials Variable	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>

Run as sudo	<p>If <a href="#">Command or Script</a> = Command; Run the command as sudo (superuser do).</p> <p>The Run as sudo option prefixes the command with either:</p> <ul style="list-style-type: none"> <li>• <b>sudo</b> (if a credential is not specified; that is, the command is run as root)</li> <li>• <b>sudo -u userid</b> (if a credential is specified, where userid = the Runtime User from the supplied credential)</li> </ul> <p>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 <code>sudoers</code> file. Please refer to your local security policy and documentation for updating the <code>sudoers</code> file.</p>
Command or Script	<p>Specifies whether a single command or a script is being executed.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Command (default)</li> <li>• Script</li> </ul> <p>If the <a href="#">Windows/Linux Scripts Permitted</a> Universal Controller system property is set to false:</p> <ul style="list-style-type: none"> <li>• The Command or Script field is set to Command and is read-only.</li> <li>• If the Command or Script field is set to Script, the field becomes modifiable so that you can change it to Command.</li> </ul>
Script	<p>Required if <a href="#">Command or Script</a> = Script; Name of the <code>script</code> in the Controller database that will be executed by this task.</p> <div data-bbox="411 862 1919 966" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.</p> </div>
Command	<p>Required if <a href="#">Command or Script</a> = Command; Command being executed on the remote machine. <a href="#">Variables</a> supported.</p>
Parameters	<p>Any arguments needed by the program to execute properly. <a href="#">Variables</a> supported.</p>
Runtime Directory	<p>Directory from which the application should be executed. <a href="#">Variables</a> supported.</p>
Environment Variables	<p>Allows you to enter environment variables needed by the program to run.</p> <p>To add a variable, click the + icon and enter a <b>Name</b> and <b>Value</b>. To delete a variable, select in the list of variables and click the - icon.</p> <p>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.</p>

Exit Code Processing	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Output Contains Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• Failure Output Contains Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• 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 <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul>
Output Type	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>
Exit Codes	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
Scan Output For	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
Output File (for <a href="#">Exit Code Processing</a> )	<p>Required if <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.</p>

<p>Automatic Output Retrieval</p>	<p>Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="background-color: #ffffcc; padding: 5px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Wait For Output</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Specification that the task should wait for the requested output before completing.</p>
<p>Start Line</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated.</p> <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is -1, data will be retrieved starting at the end of the file.</li> </ul>
<p>Number of Lines</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <a href="#">Retrieve Output Default Number Of Lines</a> Universal Controller system property.</p>
<p>Scan Text</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <b>Number of Lines</b> above and below the first line matched.</p> <p>if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.</p>
<p>Output File (for Automatic Output Retrieval)</p>	<p>Required if <a href="#">Automatic Output Retrieval</a> = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.</p>
<p><b>Retry Options</b></p>	<p>This section contains specifications for retrying the task.</p>

Retry Exit Codes	<p>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 <a href="#">Exit Codes</a> field. <a href="#">Maximum Retries</a> must be greater than 0.</p> <p>If this field is empty, any exit code potentially will cause a retry.</p>
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 <a href="#">Maximum Retries</a> 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	<p>User-defined; If the task instance is in the <a href="#">Failed status</a>, indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made:</p> <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
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.
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>



Wait Time	If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.
Wait Day Constraint	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
Wait Duration	If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.

Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.
Late Finish Type	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Late Finish Time	If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Late Finish Nth Amount	If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.

Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>

<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>

Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
Shortest Estimated End Time	System-supplied; shortest 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.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.



<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Retrieve Output</b>	See <a href="#">Retrieving Output</a> .
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Output</b>	Displays output generated from the process, if any, based on specifications provided by the user in the <a href="#">Automatic Output Retrieval</a> fields in the task Details.  If automatic output retrieval was not available or was not selected, output can be obtained by clicking the <a href="#">Retrieve Output</a> button.
<b>Notes</b>	Lists all <a href="#">notes</a> 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](#).

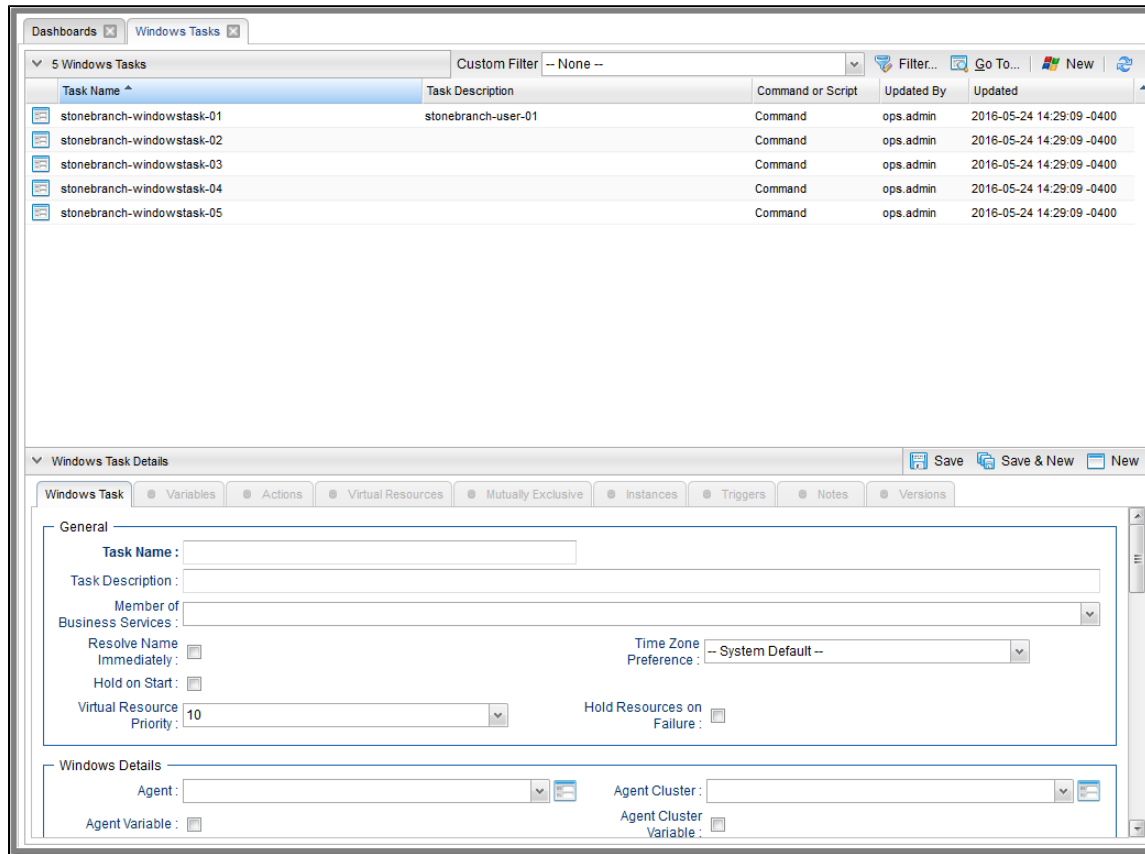
### Built-In Variables

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.



**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.

Windows Task Details: stonebranch-windowtask-01

Update Launch Task View Parents Copy Delete Refresh Close

Windows Task Variables Actions Virtual Resources Mutually Exclusive Instances Triggers Notes Versions

**General**

Task Name: stonebranch-windowtask-01 Version: 1

Task Description: stonebranch-user-01

Member of Business Services: [Dropdown]

Resolve Name Immediately:  Time Zone Preference: -- System Default --

Hold on Start:

Virtual Resource Priority: 10 Hold Resources on Failure:

---

**Windows Details**

Agent: 27963893f7704df790b5d10139ef9d08 Agent Cluster: [Dropdown]

Agent Variable:  Agent Cluster Variable:

Credentials: [Dropdown] Cluster Broadcast: [Dropdown]

Credentials Variable:  Run with Highest Privileges:

Command or Script: Command

Command: dir

Parameters: [Text Area]

Runtime Directory: [Text Area]

Interact with Desktop:

Environment Variables:

Name	Value
No items to show.	

Exit Code Processing: Success Exitcode Range

Exit Codes: 0

Automatic Output Retrieval: -- None --

---

**Retry Options**

Retry Exit Codes: [Text Area]

Maximum Retries: 0

Retry Interval (Seconds): 60

Retry Indefinitely:

Suppress Intermediate Failures:

---

**Wait/Delay Options**

Wait To Start: -- None --

Delay On Start: -- None --

Workflow Only: -- System Default --

---

**Time Options**

Late Start:

Late Finish:




## Windows Task Details Field Descriptions




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


Field Name	Description
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions tab</a> to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> of the task instance will be resolved immediately at trigger/launch time.


Time Zone Preference	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	<p>If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b>. The task runs when the user <a href="#">releases</a> it.</p>
Hold Reason	<p>Information about why the task will be put on hold when it starts.</p>
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	<p>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.</p>
<b>Windows Details</b>	<p>This section contains assorted detailed information about the task.</p>
Agent	<p>Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a>.</p>
Agent Cluster	<p>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 <a href="#">Agent Clusters</a> for more information.</p>



<p>Agent Variable</p>	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="413 258 1921 415" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>
<p>Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="413 578 1921 760" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>
<p>Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>
<p>Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="413 1089 1921 1247" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>Cluster Broadcast</p>	<p>Group of Agents, all of which will run this task (compare with Agent Cluster). You can specify a Cluster Broadcast in place 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.</p>

<p>Run with Highest Privileges</p>	<p>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.</p> <p>This option will <b>not</b> 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.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;">  <p><b>Note</b> 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).</p> </div>
<p>Command or Script</p>	<p>Specifies whether a single command or a script is being executed.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Command (default)</li> <li>• Script</li> </ul> <p>If the <a href="#">Windows/Linux Scripts Permitted</a> Universal Controller system property is set to false:</p> <ul style="list-style-type: none"> <li>• The Command or Script field is set to Command and is read-only.</li> <li>• If the Command or Script field is set to Script, the field becomes modifiable so that you can change it to Command.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;">  <p><b>Note</b> For both command-based tasks that call a <b>.vbs/.js</b> file directly, and script-based tasks that also rely on the systems association with file extension, GUI-based <b>wscript.exe</b> is associated with the <b>vbs</b> and <b>js</b> file extensions. Without explicitly calling one or the other, the Controller would use <b>wscript.exe</b>.</p> <p>The Agent system may need to be adjusted to properly use the Windows Scripting Host from the scheduler/agent environment.</p> <p>The following command can be used to set the default script host to <b>cscrip.exe</b>: <code>C:\tmp&gt;cscript //h:cscript //s</code></p> </div>
<p>Command</p>	<p>Required if <a href="#">Command or Script</a> = Command; Command being executed on the remote machine. <a href="#">Variables</a> supported.</p>
<p>Script</p>	<p>Required if <a href="#">Command or Script</a> = Script; Name of the <a href="#">script</a> in the Controller database that will be executed by this task.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;">  <p><b>Note</b> If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.</p> </div>

Parameters	Any arguments needed by the program to execute properly. <a href="#">Variables</a> supported.
Runtime Directory	Directory from which the application should be executed. <a href="#">Variables</a> supported.
Interact with Desktop	<p>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).</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                  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.</p> <p>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).</p> </div>
Create Console	If <a href="#">Interact with Desktop</a> is enabled; Allocates a new console for the process, rather than having it inherit one.
Environment Variables	<p>Allows you to enter environment variables needed by the program to run.</p> <p>To add a variable, click the + icon and enter a <b>Name</b> and <b>Value</b>. To delete a variable, select in the list of variables and click the - icon.</p> <p>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.</p>
Exit Code Processing	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Success Exitcode Range</b> Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• <b>Failure Exitcode Range</b> Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• <b>Success Output Contains</b> Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• <b>Failure Output Contains</b> Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• <b>Step Conditions (z/OS only)</b> Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul>

<p>Output Type</p>	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>
<p>Scan Output For</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
<p>Output File (for <a href="#">Exit Code Processing</a>)</p>	<p>Required if <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.</p>
<p>Exit Codes</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
<p>Automatic Output Retrieval</p>	<p>Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Wait For Output</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Specification that the task should wait for the requested output before completing.</p>

Start Line	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated.</p> <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is -1, data will be retrieved starting at the end of the file.</li> </ul>
Number of Lines	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <a href="#">Retrieve Output Default Number Of Lines</a> Universal Controller system property.</p>
Scan Text	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <b>Number of Lines</b> above and below the first line matched.</p> <p>if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.</p>
Output File (for Automatic Output Retrieval)	<p>Required if <a href="#">Automatic Output Retrieval</a> = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.</p>
<b>Retry Options</b>	<p>This section contains specifications for retrying the task.</p>
Retry Exit Codes	<p>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 <a href="#">Exit Codes</a> field. <a href="#">Maximum Retries</a> must be greater than 0.</p> <p>If this field is empty, any exit code potentially will cause a retry.</p>
Maximum Retries	<p>User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.</p>
Retry Indefinitely	<p>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 <a href="#">Maximum Retries</a> field.</p>
Retry Interval (Seconds)	<p>User-defined; number of seconds between each retry.</p>
Suppress Intermediate Failures	<p>User-defined; If the task instance is in the <a href="#">Failed status</a>, indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made:</p> <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>

<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Wait Time	If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.
Wait Day Constraint	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>

Wait Duration	If <a href="#">Wait To Start</a> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If <a href="#">Wait To Start</a> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- System Default -- Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>

Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Late Start Nth Amount	If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.
Late Start Duration	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>




<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>

<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>

<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p>User Estimated Duration</p>	<p>Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>

Before Date	If <b>Restriction Period</b> = Before or Span; Date before which the restriction is valid.
Before Time	If <b>Restriction Period</b> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <b>Restriction Period</b> = After or Span; Date after which the restriction is valid.
After Time	If <b>Restriction Period</b> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <b>Restriction Period</b> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <b>Metadata</b> 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.

<b>Created By</b>	Name of the user that created this record.
<b>Created</b>	Date and time that this record was created.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.
<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.

<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="373 453 1961 787"> <tr> <td data-bbox="373 453 558 500"><b>Abort Action</b></td> <td data-bbox="558 453 1961 500">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="373 500 558 573"><b>Email Notification</b></td> <td data-bbox="558 500 1961 573">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="373 573 558 646"><b>Set Variable</b></td> <td data-bbox="558 573 1961 646">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="373 646 558 719"><b>SNMP Notification</b></td> <td data-bbox="558 646 1961 719">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="373 719 558 787"><b>System Operation</b></td> <td data-bbox="558 719 1961 787">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
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<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<p><b>Virtual Resources</b></p>	<p>Lists all <a href="#">Virtual Resources</a> to which this task is assigned.</p>										
<p><b>Mutually Exclusive</b></p>	<p>Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.</p>										
<p><b>Instances</b></p>	<p>Lists of all instances of the task.</p>										
<p><b>Triggers</b></p>	<p>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: &lt;current task name&gt;#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see <a href="#">Triggers</a>.</p>										
<p><b>Notes</b></p>	<p>Lists all <a href="#">notes</a> associated with this record.</p>										
<p><b>Versions</b></p>	<p>Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a>.</p>										

## 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](#).



Windows Task Instance Details: stonebranch-windowstask-01

Update Re-run View Parent Retrieve Output... Delete Refresh Close

Windows Task Instance Virtual Resources Exclusive Requests Step Conditions Output Notes

**General**

Instance Name: stonebranch-windowstask-01 Reference Id: 14

Task: stonebranch-windowstask-01 Invoked By: Trigger: stonebranch-timetrigger-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 Exit Code: 0

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 CPU Time: 0

Process ID: 22872

**Windows Details**

Agent: stonebranch-windowsagent-01 Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials:

Credentials Variable:  Run with Highest Privileges:

Command or Script: Command

Command: dir

Parameters:

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: -- None --



## 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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.


<p>Invoked by</p>	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Trigger: (Trigger Name)</b> Instance was launched by the named trigger.</li> <li>• <b>Workflow: (Workflow Name)</b> Instance was launched by the named workflow.</li> <li>• <b>Manually Launched</b> Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
<p>Task Description</p>	<p>Description of this record. (Maximum = 200 characters.)</p>
<p>Member of Business Services</p>	<p>User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.</p>
<p>Execution User</p>	<p>System-supplied; If the task was launched manually; ID of the user who launched it.</p>
<p>Calendar</p>	<p>Calendar associated with the task instance.</p>
<p>Time Zone Preference</p>	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>– System Default –</b> Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• <b>Server (xxx)</b> Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• <b>Inherited</b> Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.</li> </ul>
<p>Virtual Resource Priority</p>	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
<p>Hold Resources on Failure</p>	<p>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.</p>

<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.
<b>Windows Details</b>	This section contains assorted detailed information about the task instance.
Agent	Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a> .
Agent Variable	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>
Agent Cluster	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 <a href="#">Agent Clusters</a> for more information.
Agent Cluster Variable	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>
Credentials	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>

<p>Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: <code>#{variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="413 256 1921 415" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b> When <a href="#">updating multiple Tasks</a>, to change from using a <a href="#">Credentials</a> reference to using a <a href="#">Credentials</a> variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the <a href="#">Credentials</a> variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a <a href="#">Credentials</a> variable to using a <a href="#">Credentials</a> reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the <a href="#">Credentials</a> reference in the <b>Credentials</b> field.</p> </div>
<p>Command or Script</p>	<p>Specifies whether a single command or a script is being executed.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Command (default)</li> <li>• Script</li> </ul> <p>If the <a href="#">Windows/Linux Scripts Permitted</a> Universal Controller system property is set to false:</p> <ul style="list-style-type: none"> <li>• The Command or Script field is set to Command and is read-only.</li> <li>• If the Command or Script field is set to Script, the field becomes modifiable so that you can change it to Command.</li> </ul> <div data-bbox="413 771 1921 1027" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b> For both command-based tasks that call a <b>.vbs/.js</b> file directly, and script-based tasks that also rely on the systems association with file extension, GUI-based <b>wscript.exe</b> is associated with the <b>vbs</b> and <b>js</b> file extensions. Without explicitly calling one or the other, the Controller would use <b>wscript.exe</b>.</p> <p>The Agent system may need to be adjusted to properly use the Windows Scripting Host from the scheduler/agent environment.</p> <p>The following command can be used to set the default script host to <b>cscrip.exe</b>: <code>C:\tmp&gt;cscript //h:cscrip //s</code></p> </div>
<p>Command</p>	<p>Required if <a href="#">Command or Script</a> = Command; Command being executed on the remote machine. <a href="#">Variables</a> supported.</p>
<p>Script</p>	<p>Required if <a href="#">Command or Script</a> = Script; Name of the <a href="#">script</a> in the Controller database that will be executed by this task.</p> <div data-bbox="413 1258 1921 1365" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b> If you click the Details icon for a <a href="#">Script</a> selected in this field, the <a href="#">Script Type</a> field in the Details is read-only.</p> </div>
<p>Parameters</p>	<p>Any arguments needed by the program to execute properly. <a href="#">Variables</a> supported.</p>

Runtime Directory	Directory from which the application should be executed. <a href="#">Variables</a> supported.
Interact with Desktop	<p>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).</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                  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.</p> <p>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).</p> </div>
Create Console	If <a href="#">Interact with Desktop</a> is enabled; Allocates a new console for the process, rather than having it inherit one.
Environment Variables	<p>Allows you to enter environment variables needed by the program to run.</p> <p>To add a variable, click the + icon and enter a <b>Name</b> and <b>Value</b>. To delete a variable, select in the list of variables and click the - icon.</p> <p>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.</p>
Exit Code Processing	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Success Exitcode Range</b> Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• <b>Failure Exitcode Range</b> Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• <b>Success Output Contains</b> Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• <b>Failure Output Contains</b> Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• <b>Step Conditions (z/OS only)</b> Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul>

<p>Output Type</p>	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>
<p>Exit Codes</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
<p>Scan Output For</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
<p>Output File (for <a href="#">Exit Code Processing</a>)</p>	<p>Required if <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.</p>
<p>Automatic Output Retrieval</p>	<p>Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Wait For Output</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Specification that the task should wait for the requested output before completing.</p>



<p>Start Line</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated.</p> <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is -1, data will be retrieved starting at the end of the file.</li> </ul>
<p>Number of Lines</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <a href="#">Retrieve Output Default Number Of Lines</a> Universal Controller system property.</p>
<p>Scan Text</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <b>Number of Lines</b> above and below the first line matched.</p> <p>if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.</p>
<p>Output File (for <a href="#">Automatic Output Retrieval</a>)</p>	<p>Required if <a href="#">Automatic Output Retrieval</a> = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.</p>
<p><b>Retry Options</b></p>	<p>This section contains specifications for retrying the task.</p>
<p>Retry Exit Codes</p>	<p>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 <a href="#">Exit Codes</a> field. <a href="#">Maximum Retries</a> must be greater than 0.</p> <p>If this field is empty, any exit code potentially will cause a retry.</p>
<p>Maximum Retries</p>	<p>User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.</p>
<p>Retry Indefinitely</p>	<p>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 <a href="#">Maximum Retries</a> field.</p>
<p>Retry Interval (Seconds)</p>	<p>User-defined; number of seconds between each retry.</p>
<p>Current Retry Count</p>	<p>System-supplied; current number of times that the Controller has retried the task after it first went to failure status.</p>

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

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>



<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>

Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.

<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Retrieve Output</b>	See <a href="#">Retrieving Output</a> .
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Output</b>	Displays output generated from the process, if any, based on specifications provided by the user in the <a href="#">Automatic Output Retrieval</a> fields in the task Details.  If automatic output retrieval was not available or was not selected, output can be obtained by clicking the <a href="#">Retrieve Output</a> button.
<b>Notes</b>	Lists all <a href="#">notes</a> 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](#).

## zOS 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

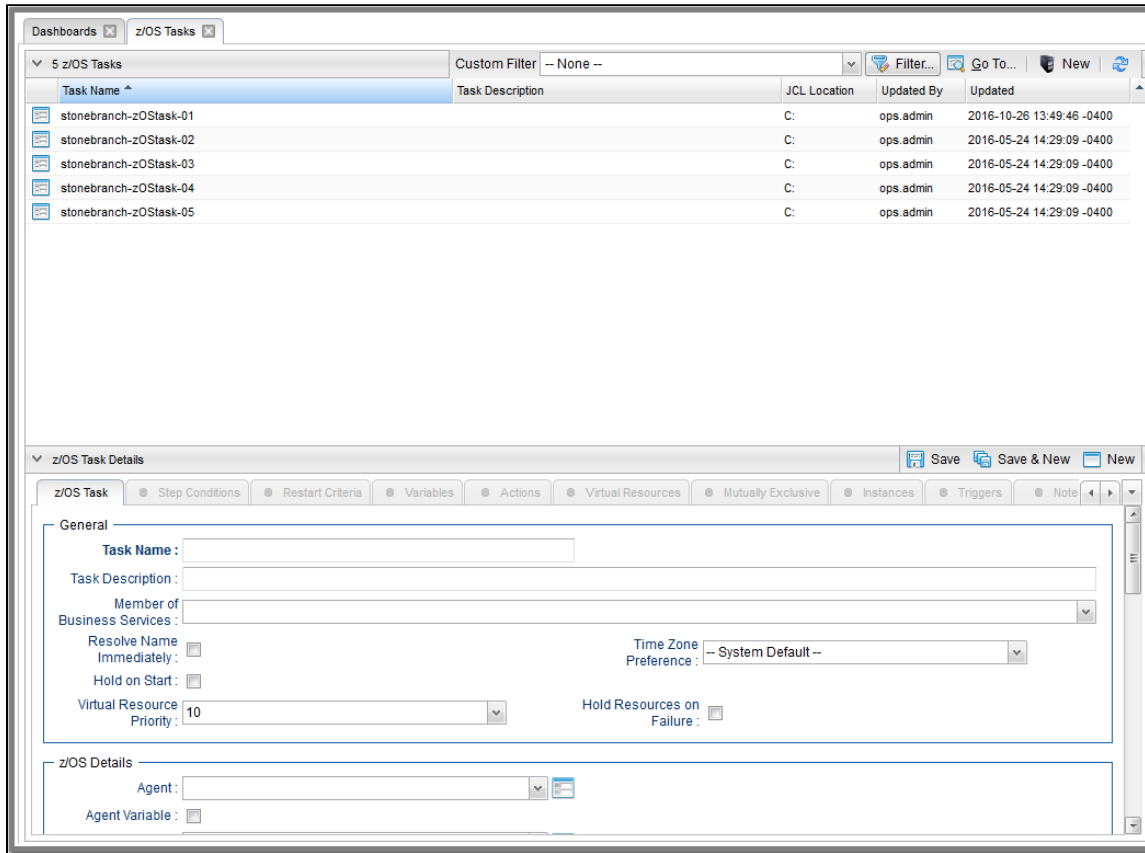
The following [built-in variables](#) can be used in a z/OS task to pass data where appropriate:

- [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.



**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

**General**

Task Name: stonebranch-zOSTask-01 Version: 8

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:

**z/OS Details**

Agent: DVZOS112 - QAZOS62

Agent Variable:

Credentials: Credentials Variable:

JCL Location: C:

Use JCL Override Library:

New Jobname: Procedure Library:

New Jobclass: Schedule Id:

New Msgclass:

Parameters:

Name	Value
No items to show.	

Exit Code Processing: Step Conditions

Automatic Output Retrieval: -- None --

**Retry Options**

Auto-Restart Option: Use Restart Criteria

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:

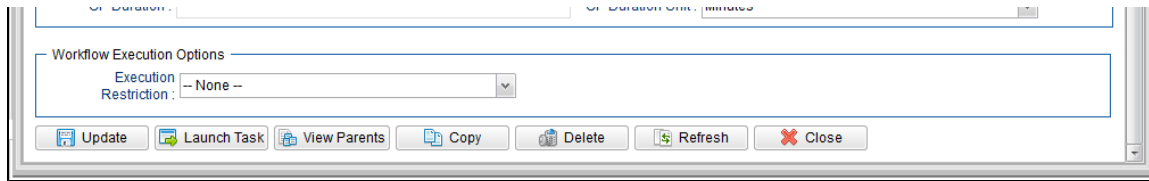
Late Finish:

Early Finish:

User Estimated Duration: Day Hour Min Sec

**Critical Path Options**


CP Duration: CP Duration Unit: Minute






## 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
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions</a> tab to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> 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) - 20 (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.
<b>z/OS Details</b>	This section contains assorted detailed information about the task.
Agent	Name of the <a href="#">Agent resource</a> that identifies the machine where the operation will run.
Agent Variable	Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a> .  <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b> When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>
Credentials	<a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.  Required if the <a href="#">Agent Credentials Required</a> 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.

<p>Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>JCL Location</p>	<p>File and member name containing the JCL script.</p> <p>When you are using the JCL_LIBRARY feature, you can substitute the name of the library with a string starting with "&amp;", 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:</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px; background-color: #f0f0f0;"> <pre>&amp;PRODLIB(PAYJOB01)</pre> </div>
<p>Use JCL Override Library</p>	<p>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 <a href="#">JCL Override Location</a>) before submitting the job from <a href="#">JCL Location</a>.</p> <p>If a JCL member is found at the override path, the job is submitted from there. Otherwise, the Agent will look to the <a href="#">JCL Location</a> path for submission.</p> <p>The task instance will display the actual path that was used for job submission in <a href="#">Submitted JCL Location</a>.</p>
<p>JCL Override Location</p>	<p>Required if <a href="#">Use JCL Override Library</a> 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 <a href="#">JCL Location</a>. 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 <a href="#">JCL Location</a>.</p> <p>Missing override JCL is not considered an error condition.</p> <p>As with <a href="#">JCL Location</a>, when you are using the JCL_LIBRARY feature, you can substitute the name of the library with a string starting with "&amp;" that names the library specified in the <b>uags.conf</b> file with the JCL_library definitions.</p>
<p>Delete Override JCL</p>	<p>Optional if <a href="#">Use JCL Override Library</a> 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.</p>



<p>Override Instance Count for Deletion</p>	<p>Required if <a href="#">Delete Override JCL</a> is selected; Specifies the number of successful override instances that must occur before the override JCL library member is deleted.</p> <p>When the deletion criteria has been satisfied, the Controller will instruct the Agent to delete the member specified in <a href="#">JCL Override Location</a>.</p> <p>An override instance is considered successful only if the ending state in the controller is SUCCESS.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      Manual resubmissions of a task instance do not increment the tracked number of successful override instances that go towards satisfying the deletion criteria.</p> <p>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.</p> </div>
<p>Last Override Deletion</p>	<p>If <a href="#">Delete Override JCL</a> is selected; system-supplied. Displays after the specified override JCL member is deleted. The date and time the last override JCL deletion occurred.</p>
<p>Number of Override Instances</p>	<p>If <a href="#">Delete Override JCL</a> 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.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      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).</p> </div>
<p>New Jobname</p>	<p>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.</p> <p>This value should be validated before the job is launched to avoid JES start failures.</p> <p>The syntax of a job name is:</p> <ul style="list-style-type: none"> <li>• 1-8 characters</li> <li>• Upper case</li> <li>• Name must start with an alphabetic or \$, #, @ character.</li> <li>• Remaining characters are alphanumeric or \$, #, @.</li> <li>• No spaces or tabs.</li> </ul>
<p>New Jobclass</p>	<p>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.</p>
<p>New Msgclass</p>	<p>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.</p>

Procedure Library	<p>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:</p> <pre data-bbox="317 237 1919 321">/*JESPARM PROCLIB=PROC001</pre> <p>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.</p>
Schedule ID	CA7 Schedule ID; for CA7 toleration only (see <a href="#">CA7/CA11 Toleration</a> ).
Parameters	<p>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.</p> <p>To add a parameter, click the <b>+</b> icon; add a Name and Value, and click the <b>Update</b> button. To delete a parameter, click the parameter on the list, the <b>-</b> icon, and the <b>Update</b> button.</p> <p>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.</p> <p>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:</p> <pre data-bbox="317 777 1919 862">// SET RUNTYPE=PROD</pre> <p>The Parameter fields also support two additional special functions:</p> <ul style="list-style-type: none"><li>• They allow you to specify any steps you want skipped during the job run. See <a href="#">Skipping Steps during Initial Run</a> for detailed instructions.</li><li>• They allow you to add data to DD* input streams. See <a href="#">Using Variables in JCL and In-Stream Data Sets</a> for detailed instructions.</li></ul>

<p>Exit Code Processing</p>	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Output Contains Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• Failure Output Contains Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• 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 <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Output Type</p>	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>
<p>Scan Output For</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
<p>Output File (for <a href="#">Exit Code Processing</a>)</p>	<p>Required if <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.</p>
<p>Exit Codes</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>

<p>Automatic Output Retrieval</p>	<p>Specifies whether you want the Controller to automatically retrieve output from the job and attach it to the task instance record.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Joblog Attach output from the z/OS joblog.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Wait For Output</p>	<p>If <a href="#">Automatic Output Retrieval</a> = File or Joblog; Specification that the task should wait for the requested output before completing.</p>
<p>Start Line</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Joblog or File; Allows you to instruct the Controller to retrieve data beginning at the line indicated. If a Start Line value is not specified on the screen, the default is 1.</p>
<p>Number of Lines</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Joblog or File; 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 <a href="#">Retrieve Output Default Maximum Lines</a> Universal Controller system property.</p>
<p>Scan Text</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Joblog or File; Instructs the Controller to scan the data for the text specified and retrieve only that. The Controller will process this field as a regular expression.</p>
<p>Output File (for Automatic Output Retrieval)</p>	<p>Required if <a href="#">Automatic Output Retrieval</a> = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.</p>
<p><b>Retry Options</b></p>	<p>This section contains specifications for retrying the task.</p>



<p>Auto-Restart Option</p>	<p>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 <a href="#">Maximum Retries</a>, <a href="#">Retry Interval</a>, and <a href="#">Retry Indefinitely</a> options.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> The <a href="#">Maximum Retries</a> value must be greater than 0 for the Auto-Restart Option to be processed.</p> </div> <p>Options:</p> <ul style="list-style-type: none"> <li>• None No job steps will be automatically selected for restart.</li> <li>• Restart From First Job Step All restartable job steps will be selected for restart.</li> <li>• Restart From Failed Job Step All restartable job steps from the failed step to the last job step will be selected for restart.</li> <li>• Use Restart Criteria The entries in the <a href="#">Restart Criteria</a> 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 <a href="#">Creating Restart Criteria</a>).</li> </ul> <p>If you select an option other than <b>None</b> 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 <b>z/OS Auto-Restart</b> from source <b>Task Instance</b>.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> 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.</p> </div>
<p>Maximum Retries</p>	<p>User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.</p>
<p>Retry Indefinitely</p>	<p>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 <a href="#">Maximum Retries</a> field.</p>
<p>Retry Interval (Seconds)</p>	<p>User-defined; number of seconds between each retry.</p>

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

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- System Default -- Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>


Early Finish	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	<p>If <a href="#">Early Finish Type</a> = 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.</p>
Early Finish Day Constraint	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Early Finish Nth Amount	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

Early Finish Duration	If <b>Early Finish Type</b> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <b>User Estimated End Time</b> on a task instance record.
<b>Critical Path Options</b>	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 <b>CP Duration Unit</b> 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 <b>CP Duration</b> 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 <b>CP Duration</b> 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 <b>CP Duration</b> . If the Controller is unable to resolve <b>CP Duration</b> or it resolves to an invalid value, <b>CP Duration</b> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	<p>Type of CP Duration; used in conjunction with the <b>CP Duration</b> field. For example, for a CP Duration of two minutes, specify 2 in the <b>CP Duration</b> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.



<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.

<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
<b>Step Conditions</b>	Lists all <a href="#">step conditions</a> defined for this task.
<b>Restart Criteria</b>	Displays a list of all <a href="#">restart criteria</a> defined for this task.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.

<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="279 451 1959 787"> <tr> <td data-bbox="279 451 478 500"><b>Abort Action</b></td> <td data-bbox="478 451 1959 500">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="279 500 478 573"><b>Email Notification</b></td> <td data-bbox="478 500 1959 573">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="279 573 478 646"><b>Set Variable</b></td> <td data-bbox="478 573 1959 646">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="279 646 478 719"><b>SNMP Notification</b></td> <td data-bbox="478 646 1959 719">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="279 719 478 787"><b>System Operation</b></td> <td data-bbox="478 719 1959 787">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
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<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<p><b>Virtual Resources</b></p>	<p>Lists all <a href="#">Virtual Resources</a> to which this task is assigned.</p>										
<p><b>Mutually Exclusive</b></p>	<p>Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.</p>										
<p><b>Instances</b></p>	<p>Lists all instances of the task.</p>										
<p><b>Triggers</b></p>	<p>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: &lt;current task name&gt;#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see <a href="#">Triggers</a>.</p>										
<p><b>Notes</b></p>	<p>Lists all <a href="#">notes</a> associated with this record.</p>										
<p><b>Versions</b></p>	<p>Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a>.</p>										

## 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 Re-run View Parent Retrieve Output... Delete Refresh Close

z/OS Task Instance Step Conditions Restart Criteria Restartable Job Steps Confirm JCL Changes Virtual Resources Exclusive Requests

**General**

Instance Name: stonebranch-zOSTask-01 Reference Id: 14  
 Task: stonebranch-zOSTask-01 Invoked By: Manually Launched  
 Task Description: IF/THEN/ELSE. - \${city}

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 Exit Code: 16  
 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: 1 Seconds CPU Time: 1  
 Job ID: JOB01536 Job Name: D03237RC

**z/OS Details**

Agent: stonebranch-zOSagent-01  
 Agent Variable:   
 Credentials: stonebranch-credential-01  
 Credentials Variable:   
 JCL Location: TESTCNTL(D237RC)  
 Use JCL Override Library:   
 New Jobname: Procedure Library:  
 New Jobclass: Schedule Id:  
 New Msgclass: JCL Changes Confirmed:

Name	Value
*@CODE1	4
*@CODE2	8

Exit Code Processing: Success Exitcode Range  
 Exit Codes: 0-16  
 Automatic Output Retrieval: -- None --

**Retry Options**

Retry Exit Codes:  
 Maximum Retries: 0 Retry Indefinitely:   
 Suppress

### 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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.


<p>Invoked by</p>	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Trigger: (Trigger Name)</b> Instance was launched by the named trigger.</li> <li>• <b>Workflow: (Workflow Name)</b> Instance was launched by the named workflow.</li> <li>• <b>Manually Launched</b> Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
<p>Task Description</p>	<p>Description of this record. (Maximum = 200 characters.)</p>
<p>Member of Business Services</p>	<p>User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.</p>
<p>Execution User</p>	<p>System-supplied; If the task was launched manually; ID of the user who launched it.</p>
<p>Calendar</p>	<p>Calendar associated with the task instance.</p>
<p>Time Zone Preference</p>	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>– System Default –</b> Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• <b>Server (xxx)</b> Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• <b>Inherited</b> Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.</li> </ul>
<p>Virtual Resource Priority</p>	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
<p>Hold Resources on Failure</p>	<p>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.</p>





<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.
<b>z/OS Details</b>	This section contains assorted detailed information about the task instance.
Agent	Name of the <a href="#">Agent resource</a> that identifies the machine where the operation will run.
Agent Variable	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>
Credentials	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>
Credentials Variable	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>

<p>JCL Location</p>	<p>File and member name containing the JCL script.</p> <p>When you are using the JCL_LIBRARY feature, you can substitute the name of the library with a string starting with "&amp;", 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:</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <pre>&amp;PRODLIB(PAYJOB01)</pre> </div>
<p>Use JCL Override Library</p>	<p>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 <a href="#">JCL Override Location</a>) before submitting the job from <a href="#">JCL Location</a>.</p> <p>If a JCL member is found at the override path, the job is submitted from there. Otherwise, the Agent will look to the <a href="#">JCL Location</a> path for submission.</p> <p>The task instance will display the actual path that was used for job submission in <a href="#">Submitted JCL Location</a>.</p>
<p>JCL Override Location</p>	<p>If <a href="#">Use JCL Override Library</a> 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 <a href="#">JCL Location</a>. 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 <a href="#">JCL Location</a>.</p> <p>Missing override JCL is not considered an error condition.</p> <p>As with <a href="#">JCL Location</a>, when you are using the JCL_LIBRARY feature, you can substitute the name of the library with a string starting with "&amp;" that names the library specified in the <code>uags.conf</code> file with the JCL_library definitions.</p>
<p>Delete Override JCL</p>	<p>If <a href="#">Use JCL Override Library</a> 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.</p>
<p>Submitted JCL Location</p>	<p>System-supplied; actual path that was used for job submission.</p>
<p>Override Instance Count for Deletion</p>	<p>If <a href="#">Delete Override JCL</a> is selected; Required. Specifies the number of successful override instances that must occur before the override JCL library member is deleted.</p> <p>When the deletion criteria has been satisfied, the Controller will instruct the Agent to delete the member specified in <a href="#">JCL Override Location</a>.</p> <p>An override instance is considered successful only if the ending state in the controller is SUCCESS.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> Manual resubmissions of a task instance do not increment the tracked number of successful override instances that go towards satisfying the deletion criteria.</p> <p>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.</p> </div>

<p>Number of Override Instances</p>	<p>If <b>Delete Override JCL</b> 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.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;">  <p><b>Note</b> 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).</p> </div>
<p>New Jobname</p>	<p>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.</p> <p>This value should be validated before the job is launched to avoid JES start failures.</p> <p>The syntax of a job name is:</p> <ul style="list-style-type: none"> <li>• 1-8 characters</li> <li>• Upper case</li> <li>• Name must start with an alphabetic or \$, #, @ character.</li> <li>• Remaining characters are alphanumeric or \$, #, @.</li> <li>• No spaces or tabs.</li> </ul>
<p>New Jobclass</p>	<p>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.</p>
<p>New Msgclass</p>	<p>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.</p>
<p>Procedure Library</p>	<p>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:</p> <div style="border: 1px solid #ccc; background-color: #f0f0f0; padding: 10px; margin: 10px 0;"> <pre>/*JESPARM PROCLIB=PROC001</pre> </div> <p>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.</p>
<p>Schedule ID</p>	<p>CA7 Schedule ID; for CA7 toleration only (see <a href="#">CA7/CA11 Toleration</a>).</p>
<p>JCL Changes Confirmed</p>	<p>If <b>Status = Confirmation Required</b>; indicates that JCL changes have been confirmed. You cannot rerun a job if this field is not selected.</p>

<p>Parameters</p>	<p>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.</p> <p>To add a parameter, click the <b>+</b> icon; add a Name and Value, and click the <b>Update</b> button. To delete a parameter, click the parameter on the list, the <b>-</b> icon, and the <b>Update</b> button.</p> <p>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.</p> <p>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:</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <pre>// SET RUNTYPE=PROD</pre> </div> <p>The Parameter fields also support two additional special functions:</p> <ul style="list-style-type: none"> <li>• They allow you to specify any steps you want skipped during the job run. See <a href="#">Skipping Steps during Initial Run</a> for detailed instructions.</li> <li>• They allow you to add data to DD* input streams. See <a href="#">Using Variables in JCL and In-Stream Data Sets</a> for detailed instructions.</li> </ul>
<p>Exit Code Processing</p>	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Output Contains Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• Failure Output Contains Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• 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 <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Output Type</p>	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>

Scan Output For	Required if <a href="#">Exit Code Processing</a> = 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 <a href="#">Exit Code Processing</a> )	Required if <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.
Exit Codes	Required if <a href="#">Exit Code Processing</a> = 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.
Automatic Output Retrieval	<p>Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
Wait For Output	If <a href="#">Automatic Output Retrieval</a> = File or Joblog; Specification that the task should wait for the requested output before completing.
Start Line	If <a href="#">Automatic Output Retrieval</a> = Joblog or File; Allows you to instruct the Controller to retrieve data beginning at the line indicated. If a Start Line value is not specified on the screen, the default is 1.
Number of Lines	If <a href="#">Automatic Output Retrieval</a> = Joblog or File; 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 <a href="#">Retrieve Output Default Maximum Lines</a> Universal Controller system property.
Scan Text	If <a href="#">Automatic Output Retrieval</a> = Joblog or File; Instructs the Controller to scan the data for the text specified and retrieve only that. The Controller will process this field as a regular expression.

<p>Output File (for Automatic Output Retrieval)</p>	<p>Required if <a href="#">Automatic Output Retrieval</a> = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.</p>
<p><b>Retry Options</b></p>	<p>This section contains specifications for retrying the task.</p>
<p>Auto-Restart Option</p>	<p>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 <a href="#">Maximum Retries</a>, <a href="#">Retry Interval</a>, and <a href="#">Retry Indefinitely</a> options.</p> <div data-bbox="317 477 1919 581" style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> The <a href="#">Maximum Retries</a> value must be greater than 0 for the Auto-Restart Option to be processed.</p> </div> <p>Options:</p> <ul style="list-style-type: none"> <li>• None No job steps will be automatically selected for restart.</li> <li>• Restart From First Job Step All restartable job steps will be selected for restart.</li> <li>• Restart From Failed Job Step All restartable job steps from the failed step to the last job step will be selected for restart.</li> <li>• Use Restart Criteria The entries in the <a href="#">Restart Criteria</a> 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 <a href="#">Creating Restart Criteria</a>).</li> </ul> <p>If you select an option other than <b>None</b> 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 <b>z/OS Auto-Restart</b> from source <b>Task Instance</b>.</p> <div data-bbox="317 997 1919 1127" style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> 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.</p> </div>
<p>Maximum Retries</p>	<p>User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.</p>
<p>Retry Indefinitely</p>	<p>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 <a href="#">Maximum Retries</a> field.</p>
<p>Retry Interval (Seconds)</p>	<p>User-defined; number of seconds between each retry.</p>

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



<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <b>Early Finish Type</b> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <b>Early Finish Day Constraint</b> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <b>Early Finish Type</b> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <b>CP Duration Unit</b> 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.</p>

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>

Before Date	If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.
Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
Shortest Estimated End Time	System-supplied; shortest 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.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.



<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Retrieve Output</b>	See <a href="#">Retrieving Output</a> .
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	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.
<b>Step Conditions</b>	Lists all <a href="#">step conditions</a> defined for this task.
<b>Restart Criteria</b>	Displays a list of all <a href="#">restart criteria</a> defined for this task.
<b>Restartable Job Steps</b>	(See <a href="#">Re-running a z/OS Task</a> .)
<b>Confirm JCL Changes</b>	(See <a href="#">Re-running a z/OS Task</a> .)

<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Output</b>	Displays output generated from the process, if any, based on specifications provided by the user in the <a href="#">Automatic Output Retrieval</a> fields in the task Details.  If automatic output retrieval was not available or was not selected, output can be obtained by clicking the <a href="#">Retrieve Output</a> button.
<b>Notes</b>	Lists all <a href="#">notes</a> 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 zOS 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:

<b>Step 1</b>	Open the z/OS task.
<b>Step 2</b>	In the <a href="#">Parameters</a> field, click the + icon.
<b>Step 3</b>	Add a parameter in the following format: <ul style="list-style-type: none"> <li>• Name is the name of a variable preceded with @. For example: *@DATE1.</li> <li>• Value is the value you want to set to the variable. For example: 20110601.</li> </ul>

**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:

<b>Step 1</b>	Open the z/OS task.
<b>Step 2</b>	In the <a href="#">Parameters</a> field, click the <b>+</b> icon.
<b>Step 3</b>	Add a parameter in the following format: <ul style="list-style-type: none"> <li>• Name = SKIPSTAA (SKIPST is a required string. AA is any combination of alphanumeric used to make this SKIPST command unique. (You can add as many SKIPST commands as needed.)</li> <li>• Value = STEPNAME (JCL step name)</li> </ul>

**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, STEP05

## 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. Starting with UAG 5.1.0.16, 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:

<b>Step 1</b>	Open the z/OS task.
<b>Step 2</b>	In the <a href="#">Parameters</a> field, click the <b>+</b> icon.
<b>Step 3</b>	Add a parameter in the following format: <ul style="list-style-type: none"> <li>• Name = OPSDSDEL</li> <li>• Value = NO</li> </ul>

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.

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.

The screenshot shows a window titled "Restartable Job Step Details" with a toolbar at the top containing "Update", "Select for Re-run", "Refresh", and "Close" buttons. The main area is titled "Restartable Job Step" and contains a "Details" section. The details are as follows:

Task Instance:	stonebranch-z0stask-01	Attempt:	1
Step Number:	3	Selected for Re-run:	<input type="checkbox"/>
Restartable:	<input checked="" type="checkbox"/>		
Step:	J20		
Procedure:			
Program:	WMSSETRC		
Step Code:	0016		
Failed:	<input type="checkbox"/>		
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		

At the bottom of the dialog, there is another toolbar with "Update", "Select for Re-run", "Refresh", and "Close" buttons.

**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**.

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

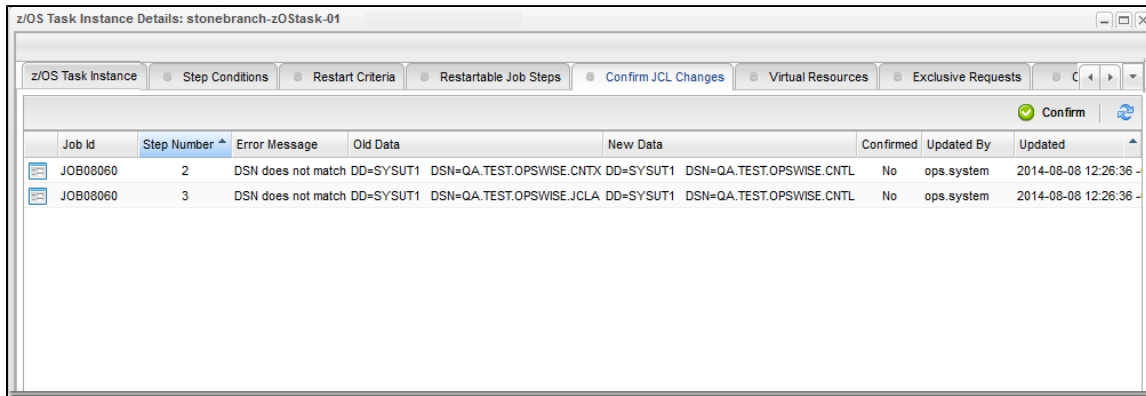
**Step 6** Click the **z/OS Task Instance** tab to redisplay the z/OS Task Instance Details.

**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:



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.

**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.

<b>Step 1</b>	From the Activity Monitor, <a href="#">open</a> 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-z0stask-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 - Opwise Non-Restartable

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

Step Number	Restartable	Selected for Re-run	Depends On	Step	Procedure	Program	Step Code	Failed	Updated By	Updated
1	Yes	No	N/A	OPSTP00	UAGRERUN	0000	0000	No	ops.system	2016-04-25 17:42:26 -0400
2	Yes	No	N/A	S1	EBGENER	0000	0000	No	ops.system	2016-04-25 17:42:26 -0400
3	No	No	N/A	S2	EBGENER	0000	0000	No	ops.system	2016-04-25 17:42:26 -0400
4	Yes	No	N/A	S3	EBGENER	0000	0000	No	ops.system	2016-04-25 17:42:26 -0400
5	Yes	No	N/A	S4	EBGENER	0000	0000	No	ops.system	2016-04-25 17:42:26 -0400
6	Yes	No	N/A	S5	EBGENER	0000	0000	No	ops.system	2016-04-25 17:42:26 -0400
7	Yes	No	N/A	S6	EBGENER	0000	0000	No	ops.admin	2016-04-26 10:51:35 -0400
8	Yes	No	N/A	S6C	IRSUPC	0000	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
/*
//
```

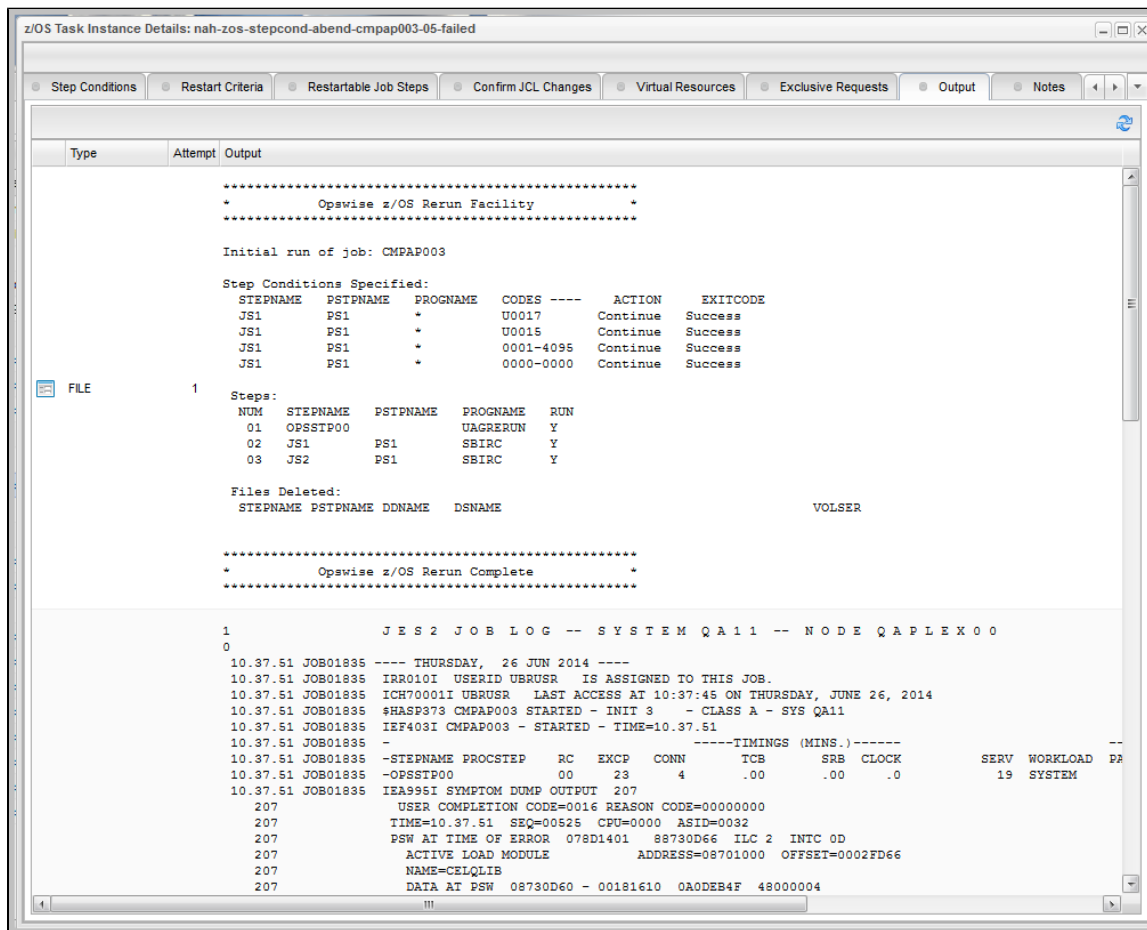
### Non-Restartable Job Steps

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:



## 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 Details
Close

Audit
Child Audits

Details

Audit Type : <input type="text" value="Command"/>	Table Name : <input type="text" value="ops_exec_zos"/>
Audit Date : <input type="text" value="2014-06-10 21:33:14 -0400"/>	Table Key : <input type="text" value="bd4ffaff67764337af85c59efa0d5349"/>
Source : <input type="text" value="User Interface"/>	Parent Audit : <input type="text" value=""/>
Created : <input type="text" value="2014-06-10 21:33:14 -0400"/>	Created By : <input type="text" value="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=77171434c0a801c9015d5b2b5d17ddee} {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_ft=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 :

Close



## 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

<b>Step 1</b>	From the <a href="#">Automation Center</a> navigation pane, select <b>Tasks &gt; z/OS Tasks</b> . The z/OS Tasks list displays.
<b>Step 2</b>	Select the task for which you want to create one or more Step Conditions. The z/OS Task Details for that task displays.

z/OS Task Details: stonebranch-zOSTask-01

z/OS Task

 Step Conditions
  Restart Criteria
  Variables
  Actions
  Virtual Resources
  Mutually Exclusive
  Instances
  Triggers

**General**

Task Name:  Version:

Task Description:

Member of Business Services:

Hold on Start:

Virtual Resource Priority:  Hold Resources on Failure:

**z/OS Details**

Agent:

Agent Variable:

Credentials:

Credentials Variable:

JCL Location:

Use JCL Override Library:

New Jobname:  Procedure Library:

New Jobclass:  Schedule Id:

New Msgclass:

Name	Value
No items to show.	

Exit Code Processing:

Automatic Output Retrieval:

**Retry Options**

Auto-Restart Option:

Maximum Retries:  Retry Indefinitely:

Retry Interval (Seconds):

**Wait/Delay Options**

Wait To Start:

Delay On Start:

Workflow Only:

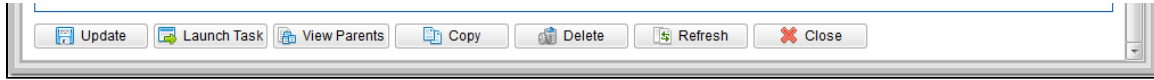
**Time Options**

Late Start:

Late Finish:

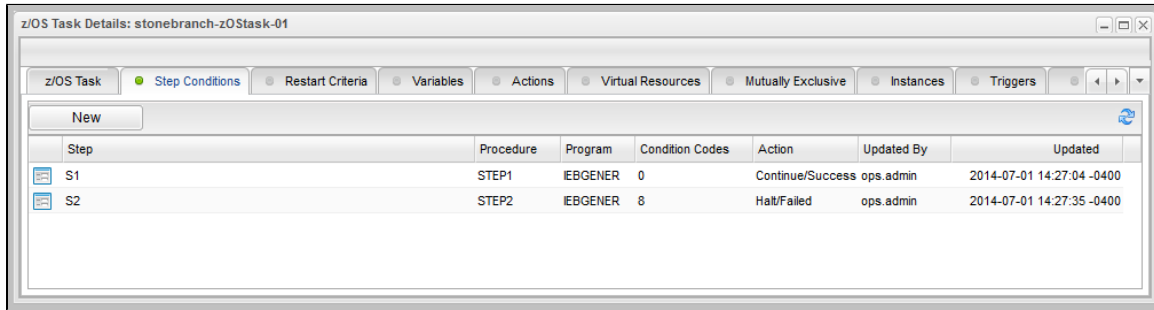
Early Finish:

User Estimated Duration:  Day  Hour  Min  Sec

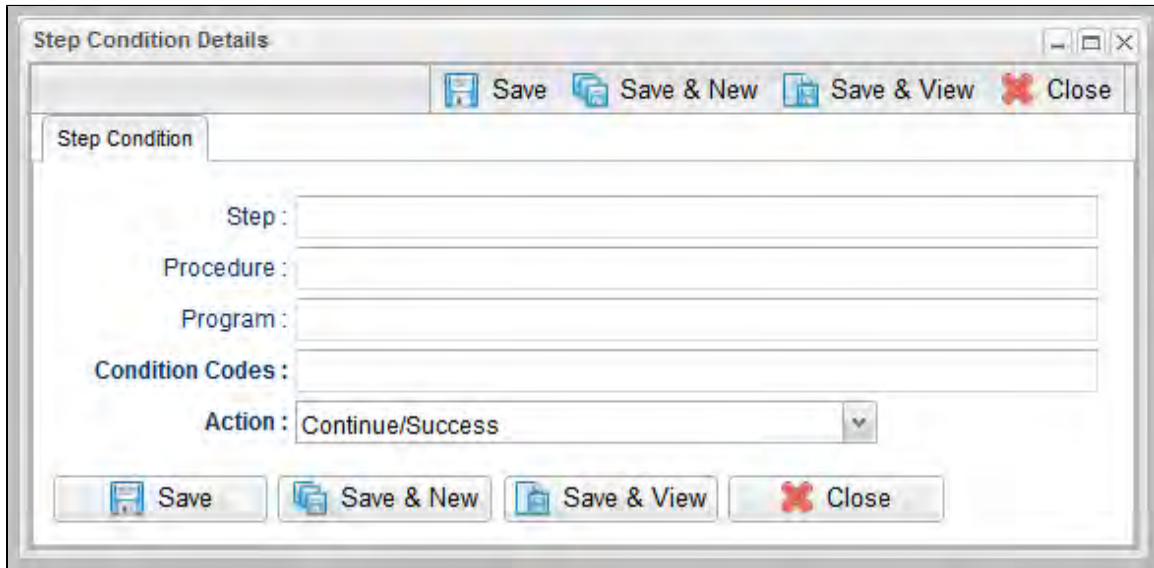


**Step 3** In the **Exit Code Processing** field, select **Step Conditions** from the drop-down list and then click the **Update** button.

**Step 4** Click the **Step Conditions** tab. The Step Conditions list displays a list of any currently defined Step Conditions for this task.



**Step 5** Click **New**. The Step Condition Details pop-up dialog displays.



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

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

**Step 8** If appropriate, repeat these steps for any additional Step Conditions you want to add.

## 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 <a href="#">Step Condition Logic</a> , below, for an explanation of the actions.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Step Condition Details that let you perform various actions.
<b>Save</b>	Saves a new record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new record.
<b>Update</b> button	Saves updates to the record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Delete</b> button	Deletes the current record.
<b>Close</b>	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 example, IEF452I 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:

<b>Continue/Success</b>	Job execution continues and task status is set to SUCCESS.
<b>Continue/Failed</b>	Job execution continues and task status is set to FAILED.
<b>Halt/Failed</b>	Job execution is halted at the current step and task status is set to FAILED.
<b>Askooper</b>	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 <a href="#">Example 4</a> , 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
```

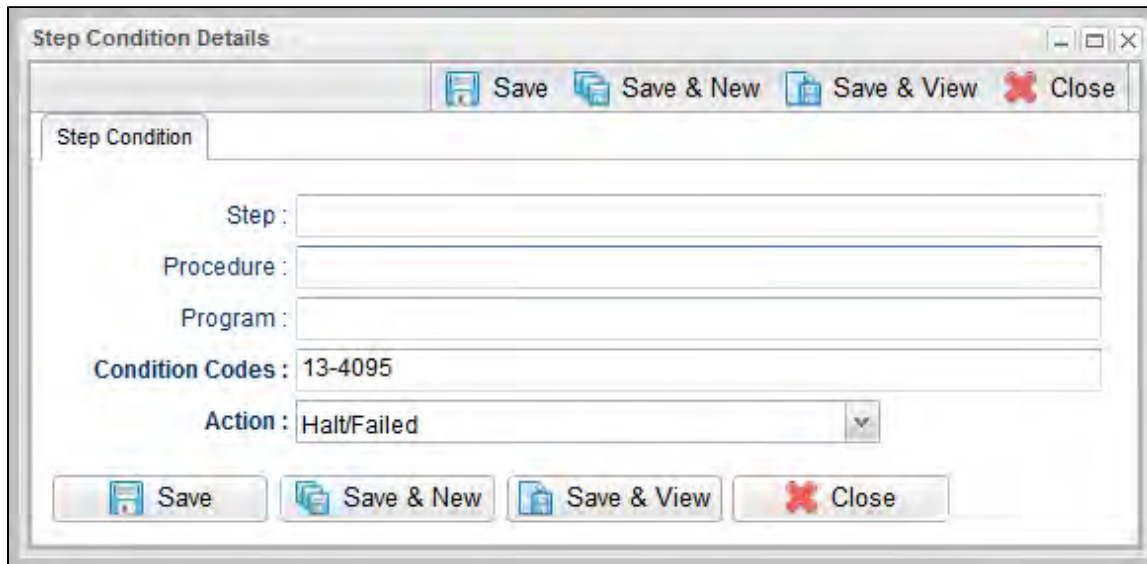
### Example Procedure (Cataloged Procedure)

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

## User Interface Specifications and Actions

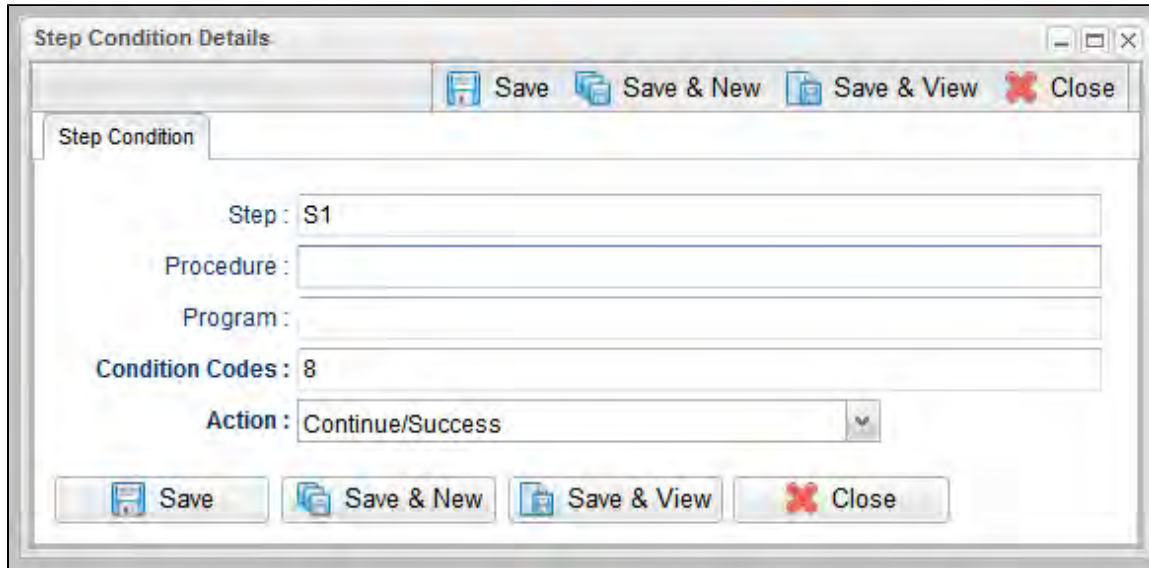
The following examples specify condition code checks for the example job above.

### Example 1



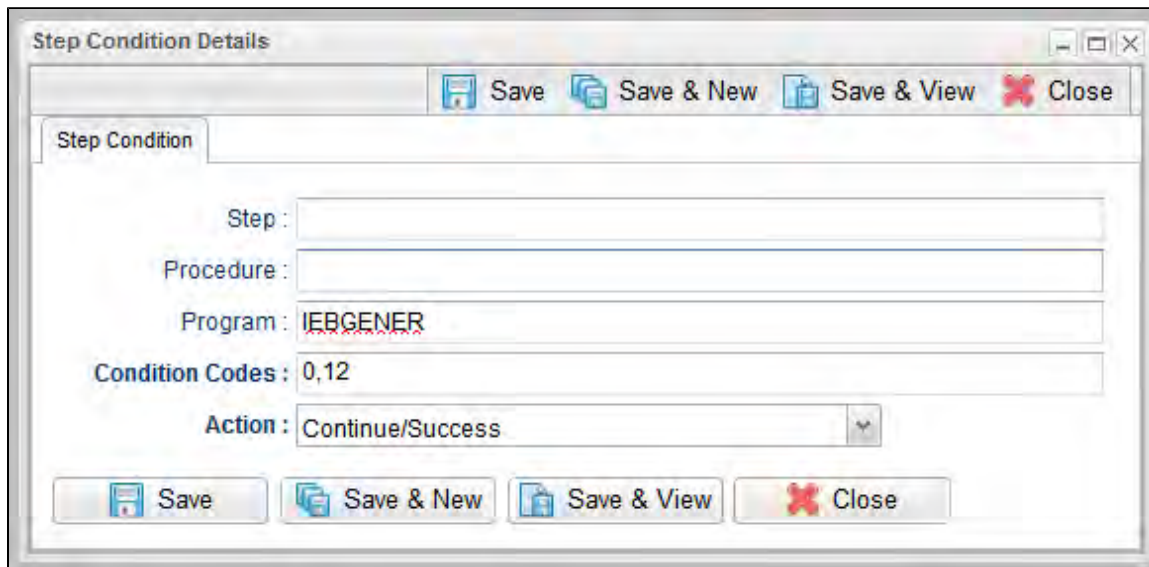
In this example, if the condition code of any step of the job is greater than 12, the job halts and the task status is set to FAILED.

**Example 2**



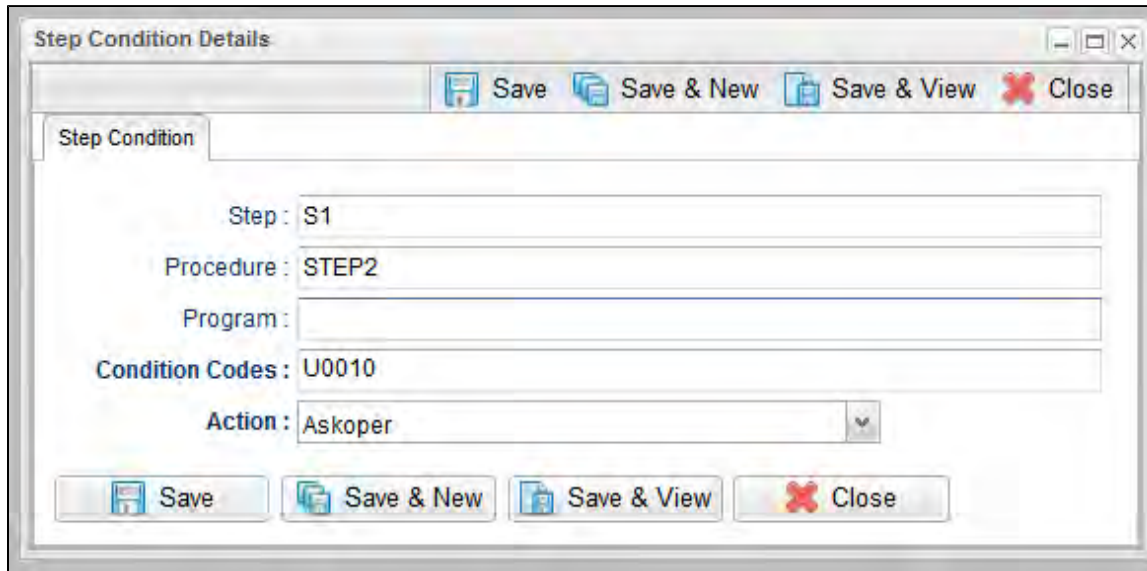
In this example, if the condition code of any procedure step executed as job step S1 is equal to 8, the job continues and the task status is set to SUCCESS.

**Example 3**



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



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

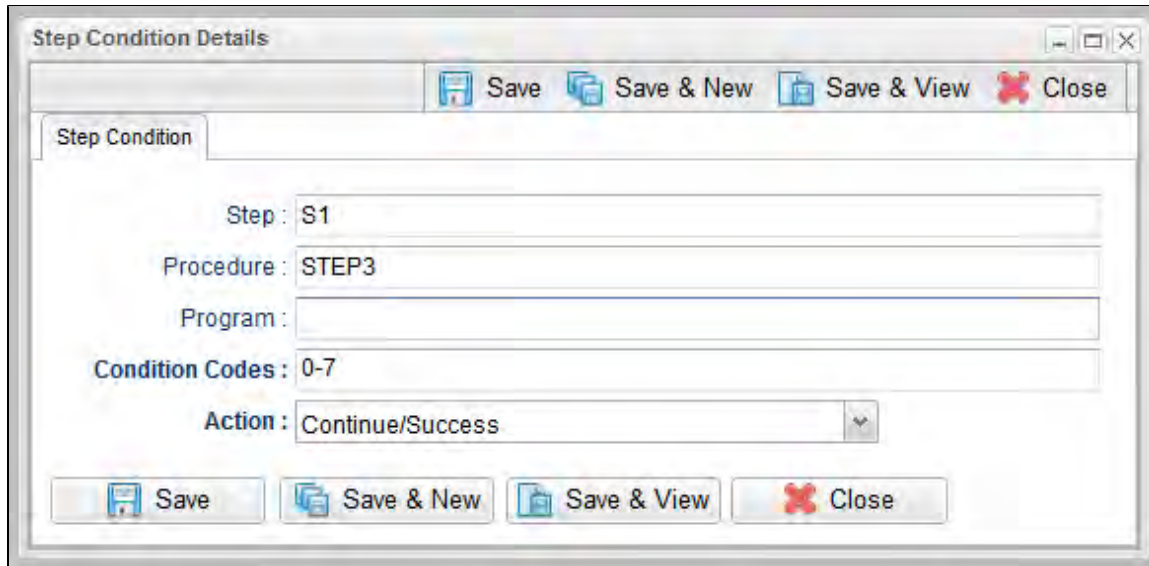
The operator must reply with one of the following:

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

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

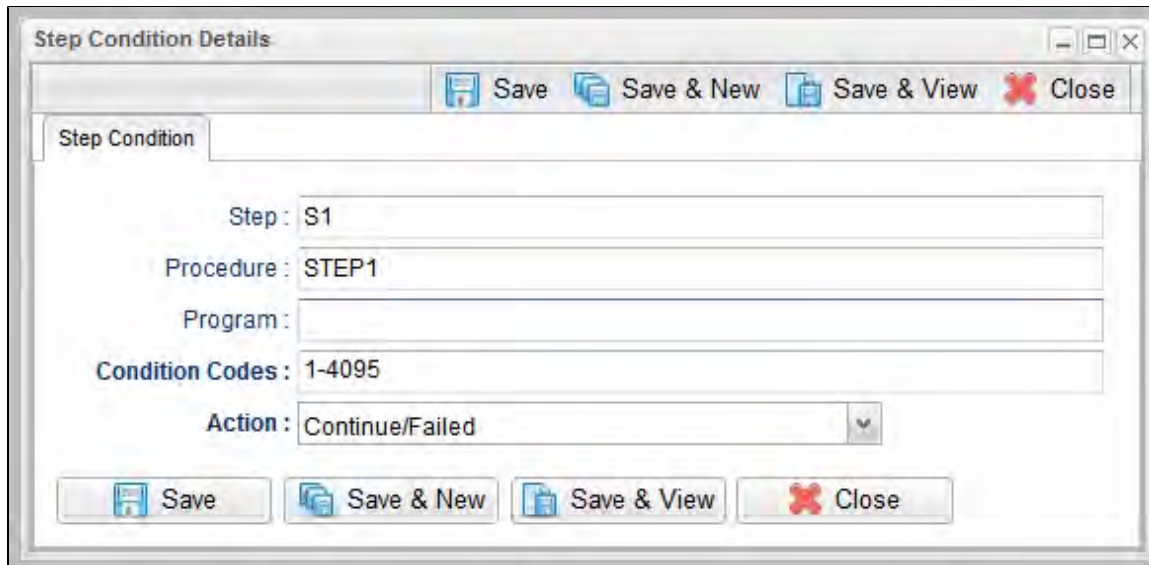
#### Example 5





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



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.

The screenshot shows the 'Workflow Task Details' window for 'stonebranch-workflow-01'. The window has a title bar and a menu bar with options: Update, Launch Task, View Parents, Edit Workflow, Copy, Delete, Refresh, and Close. Below the menu bar is a tabbed interface with the following tabs: Workflow Task, Task Run Criteria, Variables, Actions, Virtual Resources, Mutually Exclusive, Step Conditions, Step Actions, and Instances. The 'Workflow Task' tab is active, showing the following sections:

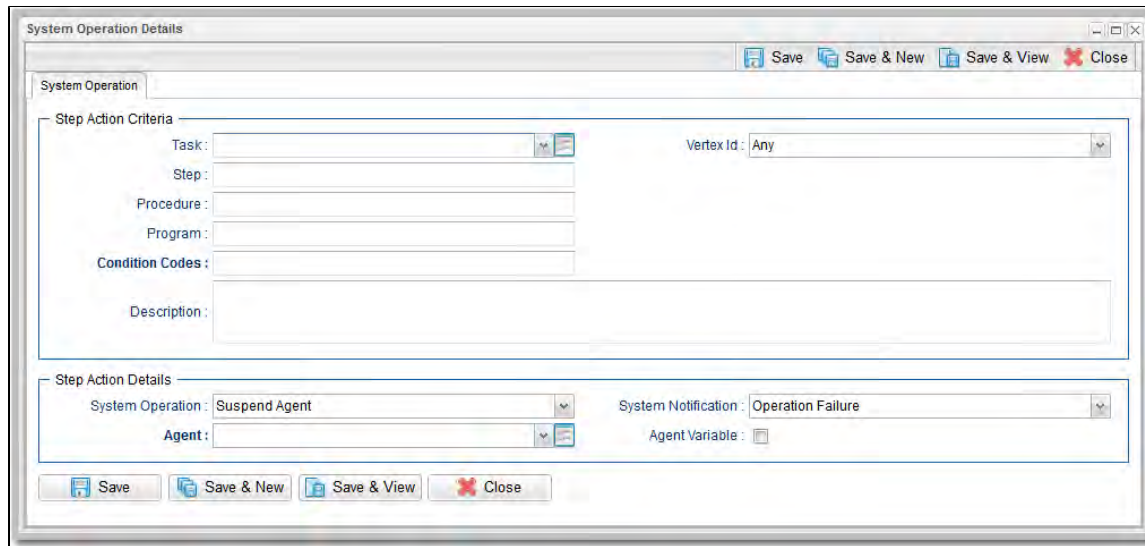
- General:** Task Name: stonebranch-workflow-01, Version: 24, Task Description: (empty), Member of Business Services: stonebranchbusinessservice 01, Hold on Start: , Virtual Resource Priority: 10, Hold Resources on Failure:
- Workflow Details:** Show/Hide Skipped Tasks: Show Skipped, Default Calendar: (empty)
- 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: (empty) Day, Hour, Min, Sec

At the bottom of the window is a toolbar with buttons: Update, Launch Task, View Parents, Edit Workflow, Copy, Delete, Refresh, and Close.

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

The screenshot shows the 'Workflow Task Details' window for 'stonebranch-workflow-01' with the 'Step Actions' tab selected. The window title and menu bar are the same as in the previous screenshot. The 'Step Actions' tab is active, showing a list of system operations. The list is currently empty, displaying '0 System Operations'. There is a 'New' button and a refresh icon to the right of the list.

**Step 4** Click **New**. The System Operation Step Actions pop-up dialog displays.



**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
<b>Step Action Criteria</b>	This section contains criteria for performing the step action.
Task	Name of a task. In combination with the <a href="#">Vertex Id</a> , 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 <a href="#">Task</a> , it specifies a specific task within the Workflow to which the step action applies.  Options: <ul style="list-style-type: none"> <li>• <b>Any</b> - The action applies to any instance of the specified task in the Workflow.</li> <li>• <b>&lt;number&gt;</b> - The action applies only to this instance of the task in the Workflow.</li> </ul>

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.
<b>Step Action Details</b>	This section contains assorted detailed information about the step action.
System Operation	<p>Specific system operation to perform.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Suspend Agent</li> <li>• Resume Agent</li> <li>• Suspend Agent Cluster</li> <li>• Resume Agent Cluster</li> <li>• Suspend Cluster Membership</li> <li>• Resume Cluster Membership</li> <li>• Set Agent Task Execution Limit</li> <li>• Set Cluster Task Execution Limit</li> <li>• Set Virtual Resource Limit</li> <li>• Run Task Instance Command</li> <li>• Launch Task</li> <li>• Trigger Now</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      For the Suspend Agent and Resume Agent operations, the user must have the following <a href="#">Agent permissions</a>:</p> <ul style="list-style-type: none"> <li>• Explicit <a href="#">Read permission</a>, if the <a href="#">Strict Business Service Membership Read Constraints</a> Universal Controller system property is true.</li> <li>• Suspend Agent and Resume Agent commands permission.</li> </ul> <p>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:</p> <ul style="list-style-type: none"> <li>• Explicit <a href="#">Read permission</a>, if the <a href="#">Strict Business Service Membership Read Constraints</a> Universal Controller system property is true.</li> <li>• Suspend Agent, Resume Agent, Suspend Agent Membership, and Resume Agent Membership commands permission.</li> </ul> </div>

System Notification	<p>Status of the specified <a href="#">system operation</a> that will trigger a system notification.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None</li> <li>• Operation Failure (default)</li> <li>• Operation Success/Failure</li> <li>• Operation Success</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> The Controller must be <a href="#">configured for system notifications</a> in order for system notifications to be triggered.</p> </div>
Agent	<p>If <a href="#">System Operation</a> is <b>Suspend Agent, Resume Agent, Suspend Cluster Membership, Resume Cluster Membership, or Set Agent Task Execution Limit</b>; Agent for which the system operation is to be performed.</p>
Agent Variable	<p>If <a href="#">System Operation</a> is <b>Suspend Agent, Resume Agent, Suspend Cluster Membership, Resume Cluster Membership, or Set Agent Task Execution Limit</b>; Indication of whether the <b>Agent</b> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <b>Agent</b> as a variable (checked).</p>
Agent Cluster	<p>If <a href="#">System Operation</a> is <b>Suspend Agent Cluster, Resume Agent Cluster, Suspend Cluster Membership, Resume Cluster Membership, or Set Cluster Task Execution Limit</b>; Agent Cluster for which the system operation is to be performed.</p>
Agent Cluster Variable	<p>If <a href="#">System Operation</a> is <b>Suspend Agent Cluster, Resume Agent Cluster, Suspend Cluster Membership, Resume Cluster Membership, or Set Cluster Task Execution Limit</b>; Indication of whether the <b>Agent Cluster</b> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <b>Agent Cluster</b> as a variable (checked).</p>
Task Execution Limit	<p>If <a href="#">System Operation</a> is <b>Set Agent Task Execution Limit or Set Cluster Task Execution Limit</b>; Specification for whether a Limited or Unlimited number of task instances can be run concurrently on the specified Agent / Agent Cluster. (Default is Unlimited.)</p>
Virtual Resource	<p>If <a href="#">System Operation</a> is <b>Set Virtual Resource Limit</b>; Virtual resource for which a virtual resource limit is to be set.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> If the <a href="#">Strict Business Service Membership Read Constraints</a> Universal Controller system property is true, the drop-down list displays only Virtual Resources for which the user has explicit <a href="#">Read permission</a>.</p> </div>
Virtual Resource Variable	<p>If <a href="#">System Operation</a> is <b>Set Virtual Resource Limit</b>; Indication of whether the <b>Virtual Resource</b> field is a reference field for selecting a specific <a href="#">Virtual Resource</a> (unchecked) or a text field for specifying the <b>Virtual Resource</b> as a variable (checked).</p>
Limit	<p>If <a href="#">System Operation</a> is <b>Set Agent Task Execution Limit or Set Cluster Task Execution Limit</b>, and <a href="#">Task Execution Limit</a> is <b>Limited</b>; Number of tasks that can be run concurrently by the specified Agent / Agent Cluster.</p> <p>If <a href="#">System Operation</a> is <b>Set Virtual Resource Limit</b>; Virtual resource limit to be set for the specified virtual resource.</p>

<p>Command</p>	<p>If <b>System Operation</b> is <b>Run Task Instance Command</b>; Type of task instance command to run.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Cancel</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Force Finish/Cancel</li> <li>• Force Finish/Cancel (Halt)</li> <li>• Skip</li> <li>• Unskip</li> <li>• Hold</li> <li>• Release</li> <li>• Release Recursive</li> <li>• Clear All Dependencies</li> <li>• Clear Exclusive</li> <li>• Clear Predecessors</li> <li>• Clear Resources</li> <li>• Clear Timewait</li> <li>• Re-run</li> </ul>
<p>Instance Lookup Option</p>	<p>If <b>System Operation</b> is <b>Run Task Instance Command</b>; Specification for how to search for the task instance to run a command against.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Instance Name</li> <li>• Instance Name/Task</li> <li>• Instance Id</li> <li>• Task</li> </ul>
<p>Instance Name</p>	<p>If <b>Instance Lookup Option</b> is <b>Instance Name</b> or <b>Instance Name/Task</b>; Name of the task instance to run the command against.</p>
<p>Instance Criteria</p>	<p>If <b>Instance Lookup Option</b> is <b>Instance Name</b>, <b>Instance Name/Task</b>, or <b>Task</b>; Additional criteria for selecting a specific task instance if multiple task instances have matching names.</p> <ul style="list-style-type: none"> <li>• Newest Active Instance</li> <li>• Oldest Active Instance</li> <li>• Newest Instance</li> <li>• Oldest Instance</li> </ul> <p>(An Active task instance is an instance that is not in any of these statuses: Skipped, Finished, Success.)</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> An Unskip command can use only the Newest Instance and Oldest Instance criteria; an active instance cannot be unskipped.</p> </div>
<p>Task Reference</p>	<ul style="list-style-type: none"> <li>• If <b>Instance Lookup Option</b> is <b>Instance Name/Task</b> or <b>Task</b>; Name of the task for which the task instance was run.</li> <li>• If <b>System Operation</b> is <b>Launch Task</b>; Name of the task to launch.</li> </ul>

Task Reference Variable	If <a href="#">Instance Lookup Option</a> is <b>Instance Name/Task</b> or <b>Task</b> , or if <a href="#">System Operation</a> is Launch Task; Indication of whether the <b>Task Reference</b> field is a reference field for selecting a specific <b>Task</b> (unchecked) or is a text field for specifying the task as a variable (checked). For a variable, use the format: <code>\${variable name}</code> . The variable must be a supported type as described in <a href="#">Variables and Functions</a> .
Instance ID	If <a href="#">Instance Lookup Option</a> is <b>Instance ID</b> ; ID of task instance to run the command against. The instance ID (sysid) is a 32-character universally unique identifier. You can use the <code>\${ops_task_id}</code> variable or <code>\${_siblingid('mytask')}</code> function to get the instance id.
Trigger Reference	If <a href="#">System Operation</a> is Trigger Now; Name of the trigger.
Trigger Reference Variable	If <a href="#">System Operation</a> is Trigger Now; Indication of whether the <b>Trigger Reference</b> field is a reference field for selecting a specific <b>Trigger</b> (unchecked) or is a text field for specifying the trigger as a variable (checked). For a variable, use the format: <code>\${variable name}</code> . The variable must be a supported type as described in <a href="#">Variables and Functions</a> .
Override Variables	If <a href="#">System Operation</a> is Launch Task or Trigger Now; Variables to override.
Override Variables Resolution Disabled	If <a href="#">System Operation</a> is Launch Task or Trigger Now; Indication of whether or not Override Variables resolution should be disabled to allow for passing unresolved variable values. <ul style="list-style-type: none"> <li>• 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.</li> <li>• If disabled (unchecked), Override Variables will be resolved prior to the execution of the Launch Task or Trigger Now System Operation.</li> </ul>
Workflow Instance Name Condition	If <a href="#">System Operation</a> 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: <ul style="list-style-type: none"> <li>• Equals</li> <li>• Starts With</li> <li>• Contains</li> <li>• Ends With</li> </ul> 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 <a href="#">Workflow Instance Name Condition</a> = Equals; Exact name of a parent workflow task instance containing the task. <a href="#">Variables</a> are supported.
Workflow Instance Name Starts With	If <a href="#">Workflow Instance Name Condition</a> = Starts With; Character string at the start of the name of a parent workflow task instance containing the task. <a href="#">Variables</a> are supported.
Workflow Instance Name Contains	If <a href="#">Workflow Instance Name Condition</a> = Contains; Character string in the name of a parent workflow task instance containing the task. <a href="#">Variables</a> are supported.
Workflow Instance Name Ends With	If <a href="#">Workflow Instance Name Condition</a> = Ends With; Character string at the end of the name of a parent workflow task instance containing the task. <a href="#">Variables</a> are supported.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.



<b>Created By</b>	Name of the user that created this record.
<b>Created</b>	Date and time that this record was created.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Step Action Details that let you perform various actions.
<b>Save</b>	Saves the new System Operation Step Action Details record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>Update</b>	Saves updates to the record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Delete</b>	Deletes the current record.
<b>Close</b>	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

<b>Step 1</b>	From the <a href="#">Automation Center</a> navigation pane, select <b>Tasks &gt; z/OS Tasks</b> . The z/OS Tasks list displays.
<b>Step 2</b>	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

**General**

Task Name:  Version:

Task Description:

Member of Business Services:

Hold on Start:

Virtual Resource Priority:  Hold Resources on Failure:

**z/OS Details**

Agent:

Agent Variable:

Credentials:

Credentials Variable:

JCL Location:

Use JCL Override Library:

New Jobname:  Procedure Library:

New Jobclass:  Schedule Id:

New Msgclass:

Name	Value
*@CODE1	4
*@CODE2	8

Exit Code Processing:

Exit Codes:

Automatic Output Retrieval:

**Retry Options**

Auto-Restart Option:

Maximum Retries:  Retry Indefinitely:

Retry Interval (Seconds):

**Wait/Delay Options**

Wait To Start:

Delay On Start:

Workflow Only:

**Time Options**

Late Start:

Late Finish:

Early Finish:

User Estimated Duration:    HH:MM:SS

Status

First Time Ran : 2014-03-13 10:32:43 -0400	Lowest Instance Time : 0 Seconds
Last Time Ran : 2014-06-23 08:55:17 -0400	Average Instance Time : 1 Seconds
Last Instance Duration : 0 Seconds	Highest Instance Time : 3 Seconds
Number of Instances : 23	

**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

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.

**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 <a href="#">Restart Criteria Logic</a> , below, for an explanation of the options.
Directives List	(See <a href="#">Restart Criteria Details - Directives</a> , below.)
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Restart Criteria Details that let you perform various actions.
<b>Save</b>	Saves a new record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>Update</b>	Saves updates to the record.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	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:

<b>Restart From First Job Step</b>	All restartable job steps, from first to last, will be selected for restart.
<b>Restart From Matching Job Step</b>	All restartable job steps, from the step that matched the Restart Criteria to the last job step, will be selected for restart.
<b>Restart Using Directives</b>	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	<p>Specifies a directive for step selection.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Start</b> - 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.</li> <li>• <b>Skip</b> - 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.</li> <li>• <b>End</b> - 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.</li> </ul>

<p>Step</p>	<p>The directive step optionally specifies:</p> <ol style="list-style-type: none"> <li>1. A relative step number. Relative step numbers begin with <b>+</b> or <b>-</b>, followed by some number of steps to offset from the step matched by the Restart Criteria. A value of <b>-0</b> or <b>+0</b> indicated that the directive is referring to the job step that matched the Restart Criteria.</li> </ol> <p>Relative step numbers are mutually exclusive with the Procedure field.</p> <p>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.</p> <ol style="list-style-type: none"> <li>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.</li> </ol>
<p>Procedure</p>	<p>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.</p>
<p><b>Add</b> button</p>	<p>Adds the directive defined by the fields above to the directive table.</p>



## Universal Command Task

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### 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

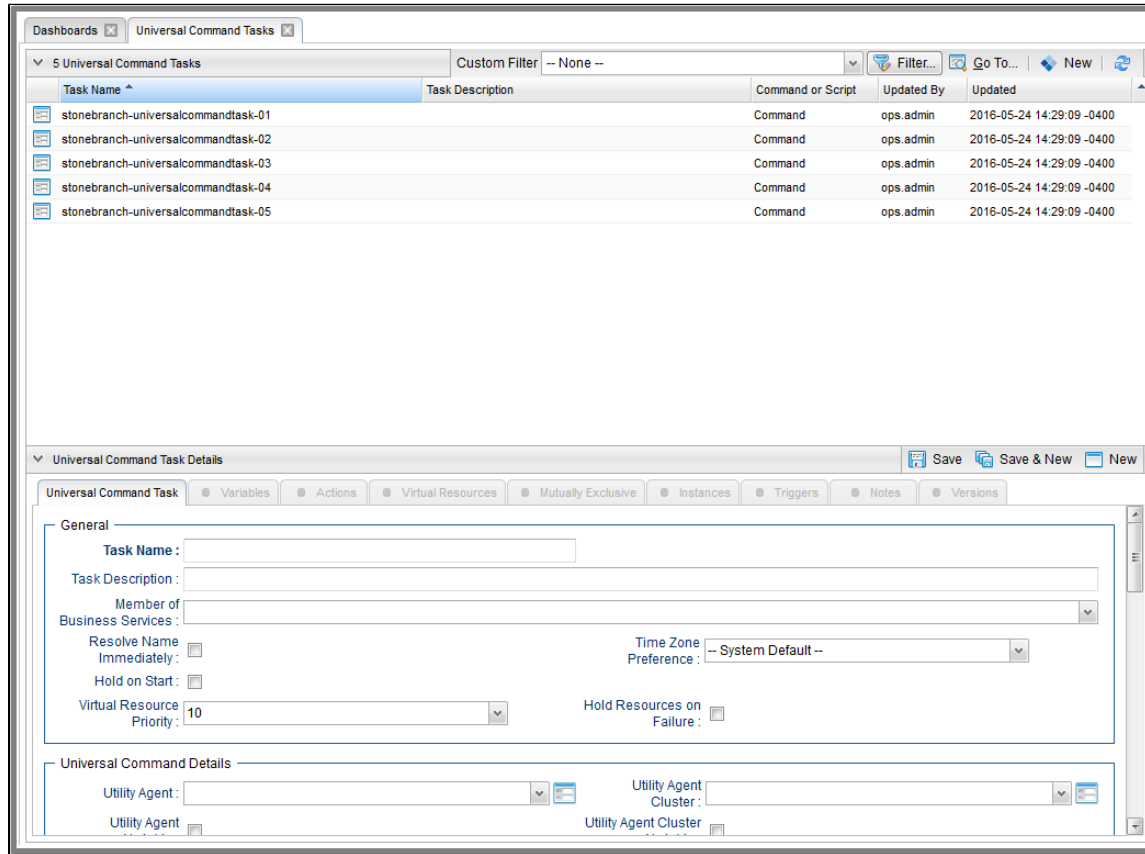
The following [built-in variables](#) can be used in a Universal Command task to pass data where appropriate:

- [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.



**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: 11

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:

**Universal Command Details**

Utility Agent: stonebranch-agent-01 Utility Agent Cluster: stonebranch-agent-02

Utility Agent Variable:  Utility Agent Cluster Variable:

Utility Credentials: stonebranch-credential-01

Utility Credentials Variable:

UCMD Agent: UCMD Agent UCMD Credentials: stonebranch-credential-02

UCMD Agent Option: UCMD Agent UCMD Credentials Variable:

Command or Script: Command

Command: dir

UCMD Options:

Runtime Directory:

Exit Code Processing: Success Exitcode Range

Exit Codes: 0

Automatic Output Retrieval: Standard Output/Error

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:

**Wait/Delay Options**

Wait To Start: -- None --

Delay On Start: -- None --

Workflow Only: -- System Default --

**Time Options**


Late Start:



Late Finish:


## 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
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions</a> tab to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> 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) - 20 (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.
<b>Universal Command Details</b>	This section contains assorted detailed information about the task.
Utility Agent	Name of the Windows or Linux/Unix Agent resource that will communicate with the Universal Command Agent. If you do not specify an Agent, you must specify an <a href="#">agent cluster</a> .
Utility Agent Variable	If enabled, the <a href="#">Utility Agent</a> 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: <code>\${variable name}</code> . The variable must be a supported type as described in <a href="#">Variables and Functions</a> .  <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the <b>Utility Agent Variable</b> field to <b>Yes</b> and specify the Utility Agent variable in the <b>Utility Agent Unresolved</b> field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the <b>Utility Agent Variable</b> field to <b>No</b> and specify the Utility Agent reference in the <b>Utility Agent</b> field.</p> </div>

<p>Utility Agent Cluster</p>	<p>Group of Agents, one of which the Controller will choose to run this task. 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 <a href="#">Agent Clusters</a> for more information.</p>
<p>Utility Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Utility Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Utility Agent Cluster</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 402 1919 581" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the <b>Utility Agent Cluster Variable</b> field to <b>Yes</b> and specify the Utility Agent Cluster variable in the <b>Utility Agent Cluster Unresolved</b> field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the <b>Utility Agent Cluster Variable</b> field to <b>No</b> and specify the Utility Agent Cluster reference in the <b>Utility Agent Cluster</b> field.</p> </div>
<p>Utility Credentials</p>	<p>Login credentials that the Agent will use to access the Universal Command server machine.</p> <p>Required if the <a href="#">Agent Credentials Required</a> Universal Controller system property is true.</p>
<p>Utility Credentials Variable</p>	<p>Indication of whether the <a href="#">Utility Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Utility Credentials</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 889 1919 1068" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Credentials reference to using a Utility Credentials variable, you must change the <b>Utility Credentials Variable</b> field to <b>Yes</b> and specify the Utility Credentials variable in the <b>Utility Credentials Unresolved</b> field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the <b>Utility Credentials Variable</b> field to <b>No</b> and specify the Utility Credentials reference in the <b>Utility Credentials</b> field.</p> </div>
<p>UCMD Agent</p>	<p>Depending on the value in the <a href="#">UCMD Agent Option</a> field, this field contains either:</p> <ul style="list-style-type: none"> <li>• Record name from the UCMD Agent table.</li> <li>• Variable that will be resolved when the task is launched.</li> <li>• Host name of a machine where the UCMD Agent is running.</li> </ul>

UCMD Agent Option	Specifies how the name of the UCMD Agent is being supplied in the <a href="#">UCMD Agent</a> field.  Options: <ul style="list-style-type: none"> <li>• UCMD Agent - UCMD Agent record is selected from the UCMD Agent table.</li> <li>• UCMD Agent Variable - UCMD Agent field contains a variable that will be resolved when the task is launched.</li> <li>• 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.</li> </ul>
UCMD Credentials	Login <a href="#">credentials</a> that Controller will use to access the remote machine where the UCMD Agent is running.
UCMD Credentials Variable	Indication of whether the <a href="#">UCMD Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">UCMD Credentials</a> as a variable (checked). Use the format: \${variablename}. The variable must be a supported type as described in <a href="#">Variables and Functions</a> .  <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a UCMD Credentials reference to using a UCMD Credentials variable, you must change the <b>UCMD Credentials Variable</b> field to <b>Yes</b> and specify the UCMD Credentials variable in the <b>UCMD Credentials Unresolved</b> field. Conversely, to change from using a UCMD Credentials variable to using a UCMD Credentials reference, you must change the <b>UCMD Credentials Variable</b> field to <b>No</b> and specify the UCMD Credentials reference in the <b>UCMD Credentials</b> field.</p> </div>
Command or Script	Specifies whether a single command or a script is being executed.  Options: <ul style="list-style-type: none"> <li>• Command (default)</li> <li>• Script</li> </ul>
Command	Required if <a href="#">Command or Script</a> = Command; Command being executed on the remote machine. <a href="#">Variables</a> supported.
Script File	Required if <a href="#">Command or Script</a> = Script; Path and filename of the script file that will be executed on the remote machine.
Script Options	If <a href="#">Command or Script</a> = 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. <a href="#">Variables</a> supported.
Runtime Directory	Directory from which the application should be executed. <a href="#">Variables</a> supported.



<p>Exit Code Processing</p>	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Output Contains Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• Failure Output Contains Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• 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 <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul>
<p>Output Type</p>	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>
<p>Scan Output For</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
<p>Output File (for <a href="#">Exit Code Processing</a>)</p>	<p>Required if <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.</p>
<p>Exit Codes</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>

<p>Automatic Output Retrieval</p>	<p>Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Wait For Output</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Specification that the task should wait for the requested output before completing.</p>
<p>Start Line</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated.</p> <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is -1, data will be retrieved starting at the end of the file.</li> </ul>
<p>Number of Lines</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <a href="#">Retrieve Output Default Number Of Lines</a> Universal Controller system property.</p>
<p>Scan Text</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <b>Number of Lines</b> above and below the first line matched.</p> <p>if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.</p>
<p>Output File (for Automatic Output Retrieval)</p>	<p>Required if <a href="#">Automatic Output Retrieval</a> = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.</p>
<p><b>Retry Options</b></p>	<p>This section contains specifications for retrying the task.</p>

Retry Exit Codes	<p>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 <a href="#">Exit Codes</a> field. <a href="#">Maximum Retries</a> must be greater than 0.</p> <p>If this field is empty, any exit code potentially will cause a retry.</p>
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 <a href="#">Maximum Retries</a> field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	<p>User-defined; If the task instance is in the <a href="#">Failed status</a>, indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made:</p> <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Wait Time	If <a href="#">Wait To Start</a> = Time or Relative Time; Number of hours and minutes to wait before starting the task.

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>- - System Default - - Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>Time - Flag the task if it starts after the specified time.</li> <li>Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>


Early Finish	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	<p>If <a href="#">Early Finish Type</a> = 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.</p>
Early Finish Day Constraint	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Early Finish Nth Amount	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>



Early Finish Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p><b>Execution Restriction</b></p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p><b>Restriction Period</b></p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p><b>Before Date</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p><b>Before Time</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p><b>After Date</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p><b>After Time</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p><b>Date List</b></p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.

<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b>            You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.

<b>Actions</b>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="275 453 1959 787"> <tr> <td data-bbox="275 453 474 500"><b>Abort Action</b></td> <td data-bbox="474 453 1959 500">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="275 500 474 573"><b>Email Notification</b></td> <td data-bbox="474 500 1959 573">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="275 573 474 646"><b>Set Variable</b></td> <td data-bbox="474 573 1959 646">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="275 646 474 719"><b>SNMP Notification</b></td> <td data-bbox="474 646 1959 719">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="275 719 474 787"><b>System Operation</b></td> <td data-bbox="474 719 1959 787">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .										
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<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.										
<b>Instances</b>	Lists all instances of the task.										
<b>Mutually Exclusive</b>	Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.										
<b>Triggers</b>	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 <a href="#">Triggers</a> .										
<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.										
<b>Versions</b>	Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a> .										

## 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-universalscommandtask-01

Update Re-run View Parent Retrieve Output... Delete Refresh Close

Universal Command Task Instance Virtual Resources Exclusive Requests Output Notes

**General**

Instance Name: stonebranch-universalscommandtask-01 Reference Id: 28

Task: stonebranch-universalscommandtask-01 Invoked By: Trigger: stonebranch-timetrigger-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 Exit Code: 0

Status Description:

Operational Memo:

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

**Universal Command Details**

Utility Agent: stonebranch-agent-01 Utility Agent Cluster:

Utility Agent Variable: Utility Agent Cluster Variable:

Utility Credentials: stonebranch-credential-01

Utility Credentials Variable:

UCMD Agent: stonebranch-agent-02 UCMD Credentials: stonebranch-credential-02

UCMD Agent Option: UCMD Agent UCMD Credentials Variable:

Command or Script: Command

Command: ls

UCMD Options:

Runtime Directory:

Exit Code Processing: Success Exitcode Range

Exit Codes: 0

Automatic Output Retrieval: Standard Output/Error

Start Line: 1 Number of Lines: 100

Scan Text:

**Retry Options**

Retry Exit Codes:

Maximum Retries: <input type="text" value="0"/>	Retry Indefinitely: <input type="checkbox"/>
Retry Interval (Seconds): <input type="text" value="60"/>	Suppress Intermediate Failures: <input type="checkbox"/>
Current Retry Count: <input type="text" value="0"/>	

---

Wait/Delay Options	
Wait To Start: <input type="text" value="Seconds"/>	Wait Duration In Seconds: <input type="text" value="30"/>
Delay On Start: <input type="text" value="Seconds"/>	Delay Duration In Seconds: <input type="text" value="30"/>

---

Critical Path Options	
CP Duration: <input type="text"/>	CP Duration Unit: <input type="text" value="Minutes"/>

---

Statistics	
User Estimated End Time: <input type="text"/>	Average Estimated End Time: <input type="text" value="2014-06-26 14:32:01 -0400"/>
Shortest Estimated End Time: <input type="text" value="2014-06-26 14:32:01 -0400"/>	Longest Estimated End Time: <input type="text" value="2014-06-26 14:32:02 -0400"/>

## 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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.




<p>Invoked by</p>	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Trigger: (Trigger Name)</b> Instance was launched by the named trigger.</li> <li>• <b>Workflow: (Workflow Name)</b> Instance was launched by the named workflow.</li> <li>• <b>Manually Launched</b> Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
<p>Task Description</p>	<p>Description of this record. (Maximum = 200 characters.)</p>
<p>Member of Business Services</p>	<p>User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.</p>
<p>Execution User</p>	<p>System-supplied; If the task was launched manually; ID of the user who launched it.</p>
<p>Calendar</p>	<p>Calendar associated with the task instance.</p>
<p>Time Zone Preference</p>	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>– System Default –</b> Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• <b>Server (xxx)</b> Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• <b>Inherited</b> Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.</li> </ul>
<p>Virtual Resource Priority</p>	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
<p>Hold Resources on Failure</p>	<p>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.</p>

<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.

<b>Universal Command Details</b>	This section contains assorted detailed information about the task instance.
Utility Agent	Name of the Windows or Linux/Unix Agent resource that will communicate with the Universal Command Agent. If you do not specify an Agent, you must specify an <a href="#">agent cluster</a> .
Utility Agent Variable	<p>If enabled, the <a href="#">Utility Agent</a> 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 <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 451 1919 607" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the <b>Utility Agent Variable</b> field to <b>Yes</b> and specify the Utility Agent variable in the <b>Utility Agent Unresolved</b> field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the <b>Utility Agent Variable</b> field to <b>No</b> and specify the Utility Agent reference in the <b>Utility Agent</b> field.</p> </div>
Utility Agent Cluster	Group of Agents, one of which the Controller will choose to run this task. 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 <a href="#">Agent Clusters</a> for more information.
Utility Agent Cluster Variable	<p>Indication of whether the <a href="#">Utility Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Utility Agent Cluster</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 915 1919 1094" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the <b>Utility Agent Cluster Variable</b> field to <b>Yes</b> and specify the Utility Agent Cluster variable in the <b>Utility Agent Cluster Unresolved</b> field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the <b>Utility Agent Cluster Variable</b> field to <b>No</b> and specify the Utility Agent Cluster reference in the <b>Utility Agent Cluster</b> field.</p> </div>
Utility Credentials	<p>Login credentials that the Agent will use to access the Universal Command server machine.</p> <p>Required if the <a href="#">Agent Credentials Required</a> Universal Controller system property is true.</p>

<p>Utility Credentials Variable</p>	<p>Indication of whether the <a href="#">Utility Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Utility Credentials</a> as a variable (checked). Use the format: <code>#{variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 261 1919 443" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Credentials reference to using a Utility Credentials variable, you must change the <b>Utility Credentials Variable</b> field to <b>Yes</b> and specify the Utility Credentials variable in the <b>Utility Credentials Unresolved</b> field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the <b>Utility Credentials Variable</b> field to <b>No</b> and specify the Utility Credentials reference in the <b>Utility Credentials</b> field.</p> </div>
<p>UCMD Agent</p>	<p>Depending on the value in the <a href="#">UCMD Agent Option</a> field, this field contains either:</p> <ul style="list-style-type: none"> <li>• Record name from the UCMD Agent table.</li> <li>• Variable that will be resolved when the task is launched.</li> <li>• Host name of a machine where the UCMD Agent is running.</li> </ul>
<p>UCMD Agent Option</p>	<p>Specifies how the name of the UCMD Agent is being supplied in the <a href="#">UCMD Agent</a> field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• UCMD Agent - UCMD Agent record is selected from the UCMD Agent table.</li> <li>• UCMD Agent Variable - UCMD Agent field contains a variable that will be resolved when the task is launched.</li> <li>• 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.</li> </ul>
<p>UCMD Credentials</p>	<p>Login <a href="#">credentials</a> that Controller will use to access the remote machine where the UCMD Agent is running.</p>
<p>UCMD Credentials Variable</p>	<p>Indication of whether the <a href="#">UCMD Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">UCMD Credentials</a> as a variable (checked). Use the format: <code>#{variablename}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 1130 1919 1312" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a UCMD Credentials reference to using a UCMD Credentials variable, you must change the <b>UCMD Credentials Variable</b> field to <b>Yes</b> and specify the UCMD Credentials variable in the <b>UCMD Credentials Unresolved</b> field. Conversely, to change from using a UCMD Credentials variable to using a UCMD Credentials reference, you must change the <b>UCMD Credentials Variable</b> field to <b>No</b> and specify the UCMD Credentials reference in the <b>UCMD Credentials</b> field.</p> </div>

<p>Command or Script</p>	<p>Specifies whether a single command or a script is being executed.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Command (default)</li> <li>• Script</li> </ul>
<p>Command</p>	<p>Required if <a href="#">Command or Script</a> = Command; Command being executed on the remote machine. <a href="#">Variables</a> supported.</p>
<p>Script File</p>	<p>Required if <a href="#">Command or Script</a> = Script; Path and filename of the script file that will be executed on the remote machine.</p>
<p>Script Options</p>	<p>If <a href="#">Command or Script</a> = Script; Optional. One or more command line options to pass to the script file.</p>
<p>UCMD Options</p>	<p>Any UCMD options needed by the program to execute properly. <a href="#">Variables</a> supported.</p>
<p>Runtime Directory</p>	<p>Directory from which the application should be executed. <a href="#">Variables</a> supported.</p>
<p>Exit Code Processing</p>	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Output Contains Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• Failure Output Contains Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• 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 <a href="#">Step Conditions tab</a> (see <a href="#">Creating Step Conditions</a>).</li> </ul>
<p>Output Type</p>	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>

Exit Codes	Required if <a href="#">Exit Code Processing</a> = 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.
Scan Output For	Required if <a href="#">Exit Code Processing</a> = 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 <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> 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: <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
Wait For Output	If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Specification that the task should wait for the requested output before completing.
Start Line	If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is -1, data will be retrieved starting at the end of the file.</li> </ul>
Number of Lines	If <a href="#">Automatic Output Retrieval</a> = 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 <a href="#">Retrieve Output Default Number Of Lines</a> Universal Controller system property.

Scan Text	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <b>Number of Lines</b> above and below the first line matched.</p> <p>if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.</p>
Output File (for <a href="#">Automatic Output Retrieval</a> )	Required if <a href="#">Automatic Output Retrieval</a> = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
<b>Retry Options</b>	This section contains specifications for retrying the task.
Retry Exit Codes	<p>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 <a href="#">Exit Codes</a> field. <b>Maximum Retries</b> must be greater than 0.</p> <p>If this field is empty, any exit code potentially will cause a retry.</p>
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 <a href="#">Maximum Retries</a> 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	<p>User-defined; If the task instance is in the <a href="#">Failed status</a>, indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made:</p> <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
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.

<p><b>Wait / Delay Options</b></p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>



Wait Duration	If <a href="#">Wait To Start</a> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If <a href="#">Wait To Start</a> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>

Before Date	If <b>Restriction Period</b> = Before or Span; Date before which the restriction is valid.
Before Time	If <b>Restriction Period</b> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <b>Restriction Period</b> = After or Span; Date after which the restriction is valid.
After Time	If <b>Restriction Period</b> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <b>Restriction Period</b> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <b>User Estimated Duration</b> 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.
Shortest Estimated End Time	System-supplied; shortest 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.
Longest Estimated End Time	System-supplied; longest 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 <b>critical path duration</b> .
<b>Metadata</b>	This section contains <b>Metadata</b> 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.

<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Retrieve Output</b>	See <a href="#">Retrieving Output</a> .
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Output</b>	Displays output generated from the process, if any, based on specifications provided by the user in the <a href="#">Automatic Output Retrieval</a> fields in the task Details.  If automatic output retrieval was not available or was not selected, output can be obtained by clicking the <a href="#">Retrieve Output</a> button.
<b>Notes</b>	Lists all <a href="#">notes</a> 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 enclosed 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
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- Creating an SAP Task
  - SAP Task Details
  - SAP Task Details Field Descriptions
- Viewing an SAP Task Instance
  - SAP Task Instance Details
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- Output Redirection
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## 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.

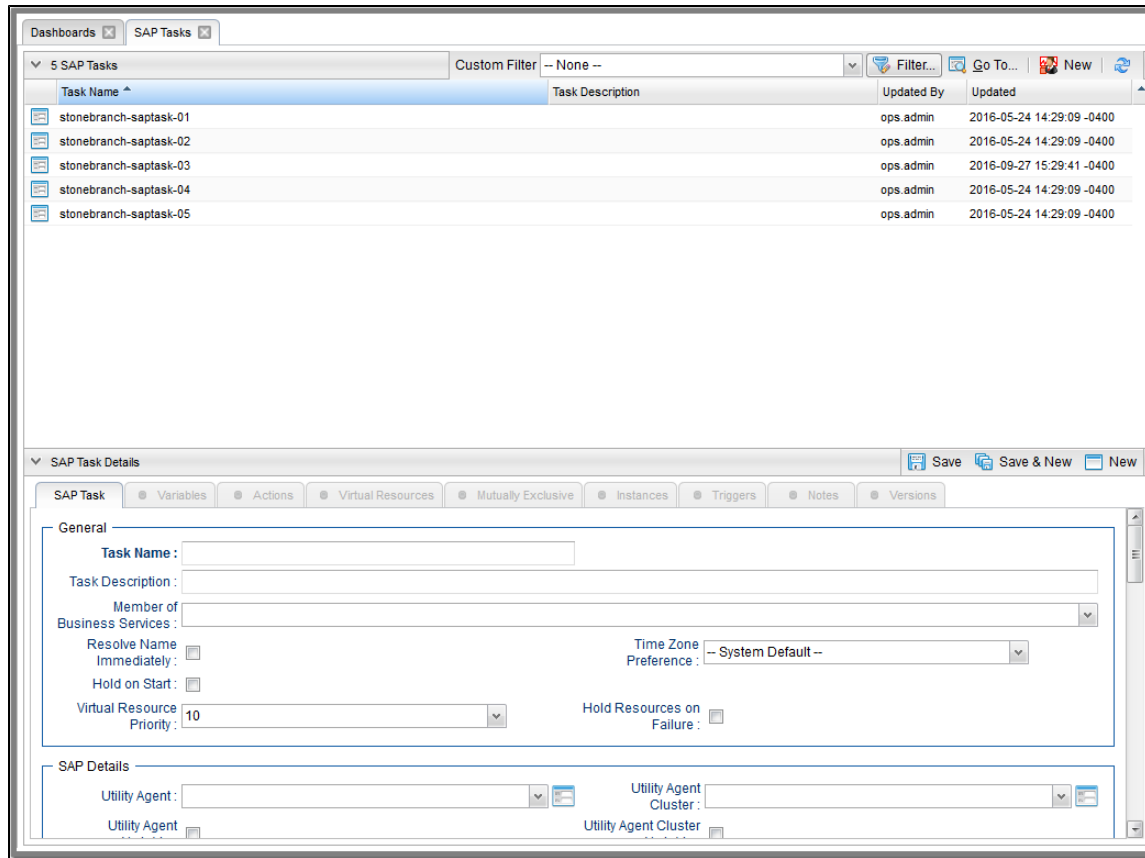
## Built-In Variables

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

**Step 1** From the [Automation Center](#) navigation pane, select **Tasks > SAP Tasks**. The SAP Tasks list displays a list of all currently defined SAP tasks. Below the list, SAP Task Details for a new SAP task displays.



**Step 2** Enter/select Details for a new SAP 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](#)).

## 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:

**SAP Details**

Utility Agent: qa-agentsim1 - simagent1 Utility Agent Cluster:

Utility Agent Variable:  Utility Agent Cluster Variable:

Utility Credentials:

SAP Connection: SAP Credentials: QATEST

SAP Connection Variable:  SAP Credentials Variable:

Command Group: Run SAP Language:

Definition or Model: USAP Definition File

Script or File System: Script

Script: SAP DEF BTCLOOP (QAOPS-BTCLOOP)

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

Exit Codes: 0

Automatic Output Retrieval: Standard Output/Error

Start Line: 1 Number of Lines: 100

Scan Text:

**Retry Options**

Maximum Retries: 0 Retry Indefinitely:




## SAP Task Details Field Descriptions



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

Field Name	Description
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions tab</a> to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.


Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
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.
<b>SAP Details</b>	This section contains assorted detailed information about the task.
Utility Agent	Name of the Linux/Unix or Windows Agent that will communicate with the SAP system. If you do not specify an Agent, you must specify an <a href="#">agent cluster</a> .



<p>Utility Agent Variable</p>	<p>If enabled, the <a href="#">Utility Agent</a> 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 <a href="#">Variables and Functions</a>.</p> <div data-bbox="413 258 1919 440" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the <b>Utility Agent Variable</b> field to <b>Yes</b> and specify the Utility Agent variable in the <b>Utility Agent Unresolved</b> field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the <b>Utility Agent Variable</b> field to <b>No</b> and specify the Utility Agent reference in the <b>Utility Agent</b> field.</p> </div>
<p>Utility Agent Cluster</p>	<p>Group of Agents, one of which the Controller will choose to run this task. 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 <a href="#">Agent Clusters</a> for more information.</p>
<p>Utility Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Utility Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Utility Agent Cluster</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="413 745 1919 927" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the <b>Utility Agent Cluster Variable</b> field to <b>Yes</b> and specify the Utility Agent Cluster variable in the <b>Utility Agent Cluster Unresolved</b> field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the <b>Utility Agent Cluster Variable</b> field to <b>No</b> and specify the Utility Agent Cluster reference in the <b>Utility Agent Cluster</b> field.</p> </div>
<p>Utility Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>
<p>Utility Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="413 1256 1919 1411" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>

SAP Connection	Name of the <a href="#">SAP connection</a> . 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	<p>Indication of whether the <a href="#">SAP Connection</a> field is a reference field for selecting a specific <a href="#">SAP Connection</a> (unchecked) or a text field for specifying the <a href="#">SAP Connection</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="413 375 1919 558" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an SAP Connection reference to using an SAP Connection variable, you must change the <b>SAP Connection Variable</b> field to <b>Yes</b> and specify the SAP Connection variable in the <b>SAP Connection Unresolved</b> field. Conversely, to change from using an SAP Connection variable to using an SAP Connection reference, you must change the <b>SAP Connection Variable</b> field to <b>No</b> and specify the SAP Connection reference in the <b>SAP Connection</b> field.</p> </div>
SAP Language	<p>SAP logon language used when executing the SAP task. Valid values are:</p> <ul style="list-style-type: none"> <li>• Any valid 1-character SAP language identifier.</li> <li>• Any valid 2-character ISO language identifier.</li> <li>• (no value). SAP will use the default language set up for the user. If there is no such default, the default is EN (English).</li> </ul>
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 <a href="#">Credentials</a> .
SAP Credentials Variable	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="413 1005 1919 1162" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
SAP Job Name	Job name of the SAP job. <a href="#">Variables</a> supported.
SAP Job ID	<p>Job ID of the SAP job. <a href="#">Variables</a> supported.</p> <p>Required for the Wait, Abort, Purge Job, and Display commands.</p> <p>See <a href="#">Universal Connector Commands</a>, below, for SAP Job ID usage with the Run, Submit, Start, and Generate Job Definition commands.</p>

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 <a href="#">Universal Connector Commands</a> , 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 <a href="#">Universal Connector (USAP)</a> .
Runtime Directory	Directory from which the application should be executed. <a href="#">Variables</a> supported.
Environment Variables	<p>Allows you to enter environment variables needed by the program to run.</p> <p>To add a variable, click the + icon and enter a <b>Name</b> and <b>Value</b>. To delete a variable, select in the list of variables and click the - icon.</p> <p>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.</p>
Exit Code Processing	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Output Contains Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• Failure Output Contains Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• 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 <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul>
Output Type	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>

Scan Output For	Required if <a href="#">Exit Code Processing</a> = 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 <a href="#">Exit Code Processing</a> )	Required if <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.
Exit Codes	Required if <a href="#">Exit Code Processing</a> = 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.
Automatic Output Retrieval	<p>Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
Wait For Output	If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Specification that the task should wait for the requested output before completing.
Start Line	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated.</p> <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is -1, data will be retrieved starting at the end of the file.</li> </ul>
Number of Lines	If <a href="#">Automatic Output Retrieval</a> = 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 <a href="#">Retrieve Output Default Number Of Lines</a> Universal Controller system property.

Scan Text	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <b>Number of Lines</b> above and below the first line matched.</p> <p>if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.</p>
Output File (for Automatic Output Retrieval)	Required if <a href="#">Automatic Output Retrieval</a> = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
<b>Retry Options</b>	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 <a href="#">Maximum Retries</a> field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	<p>User-defined; If the task instance is in the <a href="#">Failed status</a>, indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made:</p> <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Wait Time	If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.
Wait Day Constraint	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
Wait Duration	If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.

<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Delay Duration</p>	<p>If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.</p>
<p>Workflow Only</p>	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - - System Default - - Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<p><b>Time Options</b></p>	<p>This section contains time-related specifications for the task.</p>
<p>Late Start</p>	<p>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 <a href="#">Late Start Type</a>). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.</p>
<p>Late Start Type</p>	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
<p>Late Start Time</p>	<p>If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.</p>

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>




<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>

<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>
<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>

Early Finish Nth Amount	If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.
Early Finish Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.  Options: <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> Default is Minutes.
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.
<b>Launch Task</b>	Manually launches the task.

<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task instance.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.

<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="373 453 1961 787"> <tr> <td data-bbox="373 453 558 500"><b>Abort Action</b></td> <td data-bbox="558 453 1961 500">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="373 500 558 573"><b>Email Notification</b></td> <td data-bbox="558 500 1961 573">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="373 573 558 646"><b>Set Variable</b></td> <td data-bbox="558 573 1961 646">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="373 646 558 719"><b>SNMP Notification</b></td> <td data-bbox="558 646 1961 719">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="373 719 558 787"><b>System Operation</b></td> <td data-bbox="558 719 1961 787">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
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<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<p><b>Virtual Resources</b></p>	<p>Lists all <a href="#">Virtual Resources</a> to which this task is assigned.</p>										
<p><b>Mutually Exclusive</b></p>	<p>Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.</p>										
<p><b>Instances</b></p>	<p>Lists all instances of the task.</p>										
<p><b>Triggers</b></p>	<p>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: &lt;current task name&gt;#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see <a href="#">Triggers</a>.</p>										
<p><b>Notes</b></p>	<p>Lists all <a href="#">notes</a> associated with this record.</p>										
<p><b>Versions</b></p>	<p>Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a>.</p>										

## 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 Hold Skip Delete Refresh Close

SAP Task Instance Virtual Resources Exclusive Requests Output Notes

**General**

Instance Name: stonebranch-saptask-01 Reference Id: 1

Task: stonebranch-saptask-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: Undeliverable Exit Code: 0

Status Description: Agent Not Found

Operational Memo:

Trigger Time: Launch Time: 2016-08-16 11:48:44 -0400

Start Time: End Time:

Duration:

**SAP Details**

Utility Agent: 1396907253823.9c6727ae9345486f85a0fca9b934d751 Utility Agent Cluster:

Utility Agent Variable:  Utility Agent Cluster Variable:

Utility Credentials: Utility Credentials Variable:

SAP Connection: SAP Credentials: QATEST

SAP Connection Variable:  SAP Credentials Variable:

SAP Job Name: SAP Job ID:

SAP Process Chain Log ID:

SAP InfoPackage Request ID:

Command Group: Run SAP Language:

Definition or Model: USAP Definition File

Script or File System: Script: SAP DEF BTCLOOP (QAOPS-BTCLOOP)

Start Immediately:

SAP Target Server:

Print Application Log:

Print Application RC:

Use Application RC:

SAP Command Options:



## 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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.

<p>Invoked by</p>	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
<p>Task Description</p>	<p>Description of this record. (Maximum = 200 characters.)</p>
<p>Member of Business Services</p>	<p>User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.</p>
<p>Execution User</p>	<p>System-supplied; If the task was launched manually; ID of the user who launched it.</p>
<p>Calendar</p>	<p>Calendar associated with the task instance.</p>
<p>Time Zone Preference</p>	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
<p>Virtual Resource Priority</p>	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
<p>Hold Resources on Failure</p>	<p>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.</p>

<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.
<b>SAP Details</b>	This section contains assorted detailed information about the task instance.


Utility Agent	Name of the Linux/Unix or Windows Agent that will communicate with the SAP system. If you do not specify an Agent, you must specify an <a href="#">agent cluster</a> .
Utility Agent Variable	<p>If enabled, the <a href="#">Utility Agent</a> 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 <a href="#">Variables and Functions</a>.</p> <div data-bbox="426 354 1919 537" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the <b>Utility Agent Variable</b> field to <b>Yes</b> and specify the Utility Agent variable in the <b>Utility Agent Unresolved</b> field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the <b>Utility Agent Variable</b> field to <b>No</b> and specify the Utility Agent reference in the <b>Utility Agent</b> field.</p> </div>
Utility Agent Cluster	Group of Agents, one of which the Controller will choose to run this task. 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 <a href="#">Agent Clusters</a> for more information.
Utility Agent Cluster Variable	<p>Indication of whether the <a href="#">Utility Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Utility Agent Cluster</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="426 841 1919 1024" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the <b>Utility Agent Cluster Variable</b> field to <b>Yes</b> and specify the Utility Agent Cluster variable in the <b>Utility Agent Cluster Unresolved</b> field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the <b>Utility Agent Cluster Variable</b> field to <b>No</b> and specify the Utility Agent Cluster reference in the <b>Utility Agent Cluster</b> field.</p> </div>
Utility Credentials	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>

<p>Utility Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>SAP Connection</p>	<p>Name of the <a href="#">SAP connection</a>. 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.</p>
<p>SAP Connection Variable</p>	<p>Indication of whether the <a href="#">SAP Connection</a> field is a reference field for selecting a specific <a href="#">SAP Connection</a> (unchecked) or a text field for specifying the <a href="#">SAP Connection</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an SAP Connection reference to using an SAP Connection variable, you must change the <b>SAP Connection Variable</b> field to <b>Yes</b> and specify the SAP Connection variable in the <b>SAP Connection Unresolved</b> field. Conversely, to change from using an SAP Connection variable to using an SAP Connection reference, you must change the <b>SAP Connection Variable</b> field to <b>No</b> and specify the SAP Connection reference in the <b>SAP Connection</b> field.</p> </div>
<p>SAP Language</p>	<p>SAP logon language used when executing the SAP task. Valid values are:</p> <ul style="list-style-type: none"> <li>• Any valid 1-character SAP language identifier.</li> <li>• Any valid 2-character ISO language identifier.</li> <li>• (no value). SAP will use the default language set up for the user. If there is no such default, the default is EN (English).</li> </ul>
<p>SAP Credentials</p>	<p>Login credentials that the Controller will use to access the SAP system. The credentials are stored in the Universal Controller credentials table; see <a href="#">Credentials</a>.</p>

<p>SAP Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>SAP Job Name</p>	<p>Job name of the SAP job. <a href="#">Variables</a> supported.</p>
<p>SAP Job ID</p>	<p>Job ID of the SAP job. <a href="#">Variables</a> supported.</p> <p>Required for the Wait, Abort, Purge Job, and Display commands.</p> <p>See <a href="#">Universal Connector Commands</a>, below, for SAP Job ID usage with the Run, Submit, Start, and Generate Job Definition commands.</p>
<p>SAP Process Chain Log ID</p>	<p>Log ID for process chain instance to be monitored to completion.</p>
<p>SAP InfoPackage Request ID</p>	<p>Request ID of the InfoPackage that is to be monitored.</p>
<p>Command Group</p>	<p>See <a href="#">Universal Connector Commands</a>, below, for a description of all supported commands and their contingent fields (options).</p>
<p>SAP Command Options</p>	<p>Use this field to specify any additional command options supported by <a href="#">Universal Connector (USAP)</a>.</p>
<p>Runtime Directory</p>	<p>Directory from which the application should be executed. <a href="#">Variables</a> supported.</p>
<p>(Environment Variables) Name and Value</p>	<p>Allows you to enter environment variables needed by the program to run.</p> <p>To add a variable, click the + icon and enter a <b>Name</b> and <b>Value</b>. To delete a variable, select in the list of variables and click the - icon.</p> <p>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.</p>

<p>Exit Code Processing</p>	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Output Contains Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• Failure Output Contains Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• 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 <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul>
<p>Output Type</p>	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>
<p>Scan Output For</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
<p>Output File (for <a href="#">Exit Code Processing</a>)</p>	<p>Required if <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.</p>
<p>Exit Codes</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>



<p>Automatic Output Retrieval</p>	<p>Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Wait For Output</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Specification that the task should wait for the requested output before completing.</p>
<p>Start Line</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated.</p> <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is -1, data will be retrieved starting at the end of the file.</li> </ul>
<p>Number of Lines</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <a href="#">Retrieve Output Default Number Of Lines</a> Universal Controller system property.</p>
<p>Scan Text</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <b>Number of Lines</b> above and below the first line matched.</p> <p>if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.</p>
<p>Output File (for Automatic Output Retrieval)</p>	<p>Required if <a href="#">Automatic Output Retrieval</a> = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.</p>
<p><b>Retry Options</b></p>	<p>This section contains specifications for retrying the task.</p>

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 <a href="#">Maximum Retries</a> 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 <a href="#">Failed status</a> , indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made: <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
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.
<b>Wait / Delay Options</b>	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: <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Wait Time	If <a href="#">Wait To Start</a> = Time or Relative Time; Number of hours and minutes to wait before starting the task.

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.
Late Finish Type	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Late Finish Time	If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Late Finish Nth Amount	If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.

Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>



<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>

Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.

<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Retrieve Output</b>	See <a href="#">Retrieving Output</a> .
<b>SAP</b>	Displays an <a href="#">Action menu</a> of SAP commands.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Output</b>	Displays output generated from the process, if any, based on specifications provided by the user in the <a href="#">Automatic Output Retrieval</a> fields in the task Details.  If automatic output retrieval was not available or was not selected, output can be obtained by clicking the <a href="#">Retrieve Output</a> button.
<b>Notes</b>	Lists all <a href="#">notes</a> 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 enclosed 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:	<ul style="list-style-type: none"> <li>• <b>Definition or Model</b> Specifies how the new SAP job will be created, based either on a USAP Definition File or an SAP Model Job.</li> </ul>

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 spoolists to standard output.
5. Purges the job from the SAP system.

- **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.

		<ul style="list-style-type: none"> <li> <b>Start Immediately</b>                      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.                 </li> <li> <b>SAP Target Server</b>                      Name of an SAP instance at which a background job should be run. The name has the following format:                     <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">                         [host name]_[SAP System name]_[SAP System number]                     </div>                     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:                     <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">                         hs0123_C11_55                     </div> </li> <li> <b>Print Application Log</b>                      Enabled or disabled. Specifies whether or not the job's application log, if one was generated, is returned.                 </li> <li> <b>Print Application RC</b>                      Enabled or disabled. Specifies whether or not the job's application return codes, if they were set, are returned.                 </li> <li> <b>Use Application RC</b>                      Specifies whether or not the SAP job's application return codes will be used to determine the return code for the Universal Controller task.                 </li> </ul>
<p>Run Process Chain</p>	<p>Performs the following actions:</p> <ol style="list-style-type: none"> <li>1. Starts a process chain.</li> <li>2. Waits for the process chain to complete.</li> <li>3. Returns the process chain log.</li> <li>4. Returns process logs.</li> <li>5. Returns process spool lists.</li> </ol>	<ul style="list-style-type: none"> <li> <b>Chain ID</b>                      ID of the process chain to run.                 </li> </ul>

<p>Run InfoPackage</p>	<p>Performs the following actions:</p> <ol style="list-style-type: none"> <li>1. Starts an InfoPackage.</li> <li>2. Wait for the InfoPackage request to complete.</li> <li>3. Returns status messages for the completed Infopackage request.</li> </ol>	<ul style="list-style-type: none"> <li>• <b>InfoPackage</b> Name of the InfoPackage to run.</li> <li>• <b>InfoPackage Job Name</b>  Name of the SAP batch job that processes the InfoPackage request.</li> </ul>
<p>Submit</p>	<p>Defines a new SAP job.</p>	<ul style="list-style-type: none"> <li>• <b>Definition or Model</b>  Specifies how the new SAP job will be created, based either on a USAP Definition File or an SAP Model Job.</li> <li>• <b>Script or File System</b>  Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in <a href="#">Scripts</a>.</li> <li>• <b>Script</b>  Required if <b>Script or File System</b> = Script; Name of the <a href="#">script</a> in the Controller database that will be executed by this task.</li> </ul> <div data-bbox="1150 743 1921 873" style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.</p> </div> <ul style="list-style-type: none"> <li>• <b>Definition File</b>  If you selected USAP Definition File above, use this field to provide the path and file name of the file.</li> <li>• <b>SAP Job Name</b>  Job name of the SAP job. <a href="#">Variables</a> supported.</li> </ul>

- **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.

		<ul style="list-style-type: none"> <li>• <b>Target Variant Name</b> One or more replacement variants for ABAP program job steps in an SAP job.</li> </ul>
<p>Modify</p>	<p>Modifies an SAP job that already exists in an SAP system. A USAP job definition file is used to specify the modifications.</p>	<ul style="list-style-type: none"> <li>• <b>Script Library or File System</b> Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in <a href="#">Scripts</a>.</li> <li>• <b>Script</b> Required if <a href="#">Command</a> or <a href="#">Script</a> = Script; Name of the <a href="#">script</a> in the Controller database that will be executed by this task.</li> </ul> <div data-bbox="1150 561 1921 691" style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.</p> </div> <ul style="list-style-type: none"> <li>• <b>Definition File</b> If you selected USAP Definition File above, use this field to provide the path and file name of the file.</li> <li>• <b>SAP Job ID</b> Job ID of the SAP job. <a href="#">Variables</a> supported.</li> </ul>
<p>Start</p>	<p>Starts a currently defined SAP job.</p>	<ul style="list-style-type: none"> <li>• <b>SAP Job Name</b> Job name of the SAP job. <a href="#">Variables</a> supported.</li> </ul>

- **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.

<p>Start Process Chain</p>	<p>Starts the specified process chain on the SAP system.</p>	<ul style="list-style-type: none"> <li>• <b>Chain ID</b> ID of process chain to start.</li> <li>• <b>Restart</b>  Specification to restart failed and cancelled processes (R or X) in the specified process chain instance.</li> <li>• <b>Log ID</b>  Log ID for process chain instance to be restarted.</li> <li>• <b>Wait</b>  Specifies whether the Controller should wait for the SAP process chain to complete processing.</li> <li>• <b>Print Job Log</b>  Enabled or disabled. Specifies whether or not the job's joblog is returned.</li> <li>• <b>Print Spooled Output</b>  Enabled or disabled. Specifies whether or not the spoollists of all job steps are returned.</li> <li>• <b>Print Application Log</b>  Enabled or disabled. Specifies whether or not the job's application log, if one was generated, is returned.</li> <li>• <b>Print Application RC</b>  Enabled or disabled. Specifies whether or not the job's application return codes, if they were set, are returned.</li> <li>• <b>Use Application RC</b>  Specifies whether or not the SAP job's application return codes will be used to determine the return code for the Universal Controller task.</li> </ul>
<p>Start InfoPackage</p>	<p>Starts the specified InfoPackage on the SAP system.</p>	<ul style="list-style-type: none"> <li>• <b>InfoPackage</b> Name of the InfoPackage to start.</li> <li>• <b>InfoPackage Job Name</b>  Name of the SAP batch job that processes the InfoPackage request.</li> <li>• <b>Wait</b>  Specifies whether the Controller should wait for the SAP InfoPackage to complete processing.</li> </ul>

<p>Wait</p>	<p>Reconnects to a started job and monitors it through completion.</p>	<ul style="list-style-type: none"> <li>• <b>SAP Job Name</b> Job name of the SAP job. <a href="#">Variables</a> supported.</li> <li>• <b>SAP Job ID</b> Job ID of the SAP job. <a href="#">Variables</a> supported.</li> <li>• <b>Print Job Log</b> Enabled or disabled. Specifies whether or not the job's joblog is returned.</li> <li>• <b>Print Spooled Output</b> Enabled or disabled. Specifies whether or not the spoollists of all job steps are returned.</li> <li>• <b>Print Application Log</b> Enabled or disabled. Specifies whether or not the job's application log, if one was generated, is returned.</li> <li>• <b>Print Application RC</b> Enabled or disabled. Specifies whether or not the job's application return codes, if they were set, are returned.</li> <li>• <b>Use Application RC</b> Specifies whether or not the SAP job's application return codes will be used to determine the return code for the Universal Controller task.</li> </ul>
<p>Wait Process Chain</p>	<p>Waits for a Process Chain to complete.</p>	<ul style="list-style-type: none"> <li>• <b>Chain ID</b> ID of process chain to be monitored to completion.</li> <li>• <b>Log ID</b> Log ID for process chain instance to be monitored to completion.</li> </ul>
<p>Wait InfoPackage</p>	<p>Waits for an InfoPackage to complete.</p>	<ul style="list-style-type: none"> <li>• <b>Request ID</b> Request ID of the InfoPackage that is to be monitored.</li> </ul>

Abort	<p> Cancels a running SAP job.</p>	<ul style="list-style-type: none"> <li> <b>SAP Job Name</b>  Job name of the SAP job. <i>Variables</i> supported. </li> <li> <b>SAP Job ID</b>  Job ID of the SAP job. <i>Variables</i> supported. </li> </ul>						
Interrupt Process Chain	<p> Removes the specified process chain from the schedule.</p>	<ul style="list-style-type: none"> <li> <b>Chain ID</b>  ID of process chain that is to be interrupted. </li> </ul>						
Purge Job	<p> 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.</p>	<ul style="list-style-type: none"> <li> <b>SAP Job Name</b>  Job name of the SAP job. <i>Variables</i> supported. </li> <li> <b>SAP Job ID</b>  Job ID of the SAP job. <i>Variables</i> supported. </li> </ul>						
Purge Variant	<p> Deletes a variant from an SAP system.</p>	<ul style="list-style-type: none"> <li> <b>SAP ABAP Program Name</b>  Name of the ABAP program for which the variant will be deleted. </li> <li> <b>SAP Variant Name</b>  Name of the variant to be deleted. </li> </ul>						
Raise Event	<p> Raises the specified SAP background processing event.</p>	<ul style="list-style-type: none"> <li> <b>SAP Event</b>  Name of the event. </li> <li> <b>SAP Event Parameter</b>  Optional parameter value for the event. </li> </ul>						
Display	<p> Displays the data specified in the Display Command field. The data is written to standard output.</p>	<ul style="list-style-type: none"> <li> <b>Display Command</b>  One of the following: <table border="1" data-bbox="1108 1312 1961 1451"> <tr> <td><a href="#">Job Log</a></td> <td>Displays the job log for a specified SAP job.</td> </tr> <tr> <td><a href="#">Spool List</a></td> <td>Displays the spoollist for a job step.</td> </tr> <tr> <td><a href="#">Status</a></td> <td>Displays the current status for an SAP job.</td> </tr> </table> </li> </ul>	<a href="#">Job Log</a>	Displays the job log for a specified SAP job.	<a href="#">Spool List</a>	Displays the spoollist for a job step.	<a href="#">Status</a>	Displays the current status for an SAP job.
<a href="#">Job Log</a>	Displays the job log for a specified SAP job.							
<a href="#">Spool List</a>	Displays the spoollist for a job step.							
<a href="#">Status</a>	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. <b>Note:</b> 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.

<p>Create CM Profile</p>	<p>Creates a new Criteria Manager profile.</p>	<ul style="list-style-type: none"> <li>• <b>Script or File System</b> Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in <a href="#">Scripts</a>.</li> <li>• <b>Script</b> Required if <b>Script or File System</b> = Script; Name of the <a href="#">script</a> in the Controller database that will be executed by this task.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.</p> </div> <ul style="list-style-type: none"> <li>• <b>SAP Criteria Manager XML File</b> Name of the file that contains the Criteria Manager information.</li> <li>• <b>Event Select State</b> Event status of the events which should be read.</li> <li>• <b>SAP Event</b> Name of the event.</li> <li>• <b>SAP Event Parameter</b> Optional parameter value for the event.</li> <li>• <b>Confirm Returned Events</b> Specification for whether or not the status of returned events should be changed in the SAP system.</li> </ul>
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<p>Set CM Criteria</p>	<p>Sets the criteria for a profile.</p>	<ul style="list-style-type: none"> <li>• <b>Script or File System</b> Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in <a href="#">Scripts</a>.</li> <li>• <b>Script</b> Required if <b>Script or File System</b> = Script; Name of the <a href="#">script</a> in the Controller database that will be executed by this task.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.</p> </div> <ul style="list-style-type: none"> <li>• <b>SAP Criteria Manager XML File</b> Name of the file that contains the Criteria Manager information.</li> <li>• <b>SAP Criteria Manager Profile ID</b> ID of the profile.</li> <li>• <b>SAP Criteria Manager Profile Type</b> Type of profile. For the default criteria types provided by SAP, the values are: <ul style="list-style-type: none"> <li>• <b>EVTHIS</b> - Identifies a criteria type for event history.</li> <li>• <b>EVHIRO</b> - Identifies a criteria type for the reorganization of raised events.</li> <li>• <b>INTERC</b> - Identifies a criteria type for job interception.</li> </ul> </li> <li>• <b>Event Select State</b> Event status of the events which should be read.</li> <li>• <b>SAP Event</b> Name of the event.</li> <li>• <b>SAP Event Parameter</b> Optional parameter value for the event.</li> <li>• <b>Confirm Returned Events</b> Specification for whether or not the status of returned events should be changed in the SAP system.</li> </ul>
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<p>Activate CM Profile</p>	<p>Activates a criteria profile of the specified type.</p>	<ul style="list-style-type: none"> <li>• <b>SAP Criteria Manager Profile ID</b> ID of the profile.</li> <li>• <b>SAP Criteria Manager Profile Type</b> Type of profile. For the default criteria types provided by SAP, the values are: <ul style="list-style-type: none"> <li>• <b>EVTHIS</b> - Identifies a criteria type for event history.</li> <li>• <b>EVHIRO</b> - Identifies a criteria type for the reorganization of raised events.</li> <li>• <b>INTERC</b> - Identifies a criteria type for job interception.</li> </ul> </li> <li>• <b>Event Select State</b> Event status of the events which should be read.</li> <li>• <b>SAP Event</b> Name of the event.</li> <li>• <b>SAP Event Parameter</b> Optional parameter value for the event.</li> <li>• <b>Confirm Returned Events</b> Specification for whether or not the status of returned events should be changed in the SAP system.</li> </ul>
<p>Deactivate CM Profile</p>	<p>Deactivates a criteria profile of the specified type.</p>	<ul style="list-style-type: none"> <li>• <b>SAP Criteria Manager Profile Type</b> Type of profile. For the default criteria types provided by SAP, the values are: <ul style="list-style-type: none"> <li>• <b>EVTHIS</b> - Identifies a criteria type for event history.</li> <li>• <b>EVHIRO</b> - Identifies a criteria type for the reorganization of raised events.</li> <li>• <b>INTERC</b> - Identifies a criteria type for job interception.</li> </ul> </li> <li>• <b>Event Select State</b> Event status of the events which should be read.</li> <li>• <b>SAP Event</b> Name of the event.</li> <li>• <b>SAP Event Parameter</b> Optional parameter value for the event.</li> <li>• <b>Confirm Returned Events</b> Specification for whether or not the status of returned events should be changed in the SAP system.</li> </ul>

<p>Delete CM Profile</p>	<p>Deletes a criteria profile from an SAP system.</p>	<ul style="list-style-type: none"> <li>• <b>SAP Criteria Manager Profile ID</b> ID of the profile.</li> <li>• <b>SAP Criteria Manager Profile Type</b> Type of profile. For the default criteria types provided by SAP, the values are: <ul style="list-style-type: none"> <li>• <b>EVTHIS</b> - Identifies a criteria type for event history.</li> <li>• <b>EVHIRO</b> - Identifies a criteria type for the reorganization of raised events.</li> <li>• <b>INTERC</b> - Identifies a criteria type for job interception.</li> </ul> </li> <li>• <b>Event Select State</b> Event status of the events which should be read.</li> <li>• <b>SAP Event</b> Name of the event.</li> <li>• <b>SAP Event Parameter</b> Optional parameter value for the event.</li> <li>• <b>Confirm Returned Events</b> Specification for whether or not the status of returned events should be changed in the SAP system.</li> </ul>
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## 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
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## 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.

The screenshot shows the 'PeopleSoft Tasks' list in the Automation Center. The list contains five tasks, all created by 'ops.admin'.

Task Name	Task Description	Updated By	Updated
stonebranch-peoplesofttask-01		ops.admin	2018-05-14 14:30:04 -0400
stonebranch-peoplesofttask-02		ops.admin	2018-05-04 11:31:21 -0400
stonebranch-peoplesofttask-03		ops.admin	2018-05-04 11:31:32 -0400
stonebranch-peoplesofttask-04		ops.admin	2018-05-15 09:46:06 -0400
stonebranch-peoplesofttask-05		ops.admin	2018-05-15 09:39:11 -0400

Below the list, the 'PeopleSoft Task Details' form is displayed. The form has several tabs: 'PeopleSoft Task', 'RunTime Parameters', 'Variables', 'Actions', 'Virtual Resources', 'Mutually Exclusive', 'Instances', 'Triggers', 'Notes', and 'Versions'. The 'PeopleSoft Task' tab is active, showing the following fields:

- General:**
  - Task Name: [Text Field]
  - Task Description: [Text Field]
  - Member of Business Services: [Dropdown]
  - Resolve Name Immediately:
  - Hold on Start:
  - Virtual Resource Priority: [Dropdown, value: 10]
  - Time Zone Preference: [Dropdown, value: - System Default --]
  - Hold Resources on Failure:
- PeopleSoft Details:**
  - Utility Agent: [Dropdown]
  - Utility Agent Cluster: [Dropdown]
  - Utility Agent Variable:
  - Utility Agent Cluster Variable:
  - Utility Credentials: [Dropdown]
  - Utility Credentials: [Text Field]

<b>Step 2</b>	<p>Enter/select Details for a new PeopleSoft task, using the <a href="#">field descriptions</a> below as a guide.</p> <ul style="list-style-type: none"> <li>• Required fields display in <b>boldface</b>.</li> <li>• Default values for fields, if available, display automatically.</li> </ul> <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> <li>• Use the scroll bar.</li> <li>• Temporarily <a href="#">hide the list</a> above the Details.</li> <li>• Click the <b>New</b> button above the list to display a pop-up version of the Details.</li> </ul>
<b>Step 3</b>	Click a <b>Save</b> 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 the [field 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: 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:

**PeopleSoft Details**

Utility Agent: qa-x86 Utility Agent Cluster:

Utility Agent Variable:  Utility Agent Cluster Variable:

Utility Credentials: Utility Credentials Variable:

PeopleSoft Connection: PS PeopleSoft Credentials: PeopleSoft Credentials Variable:

Command: Schedule Process

Run Control ID: ESS1A Process Type: Application Engine

Process/Job Name: TREEMOVER 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:

Exit Code Processing: Success Exitcode Range

Exit Codes: 0

Automatic Output Retrieval: Standard Output/Error

Start Line: 1 Number of Lines: 100

Scan Text:

**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 Id Type	Distribution Id
No items to show.	

**Retry Options**

Maximum Retries:  Retry Indefinitely:

Retry Interval (Seconds):  Suppress Intermediate Failures:

**Wait/Delay Options**

Wait To Start:

Delay On Start:

Workflow Only:

**Time Options**

Late Start:  Late Finish:  Early Finish:

User Estimated Duration:  Day  Hour  Min  Sec

**Critical Path Options**

CP Duration:  CP Duration Unit:

**Workflow Execution Options**

Execution Restriction:



**Statistics**




First Time Ran: <input type="text" value="2018-06-22 10:32:14 -0400"/>	Lowest Instance Time: <input type="text" value="21 Seconds"/>
Last Time Ran: <input type="text" value="2018-06-22 10:42:31 -0400"/>	Average Instance Time: <input type="text" value="21 Seconds"/>
Last Instance Duration: <input type="text" value="21 Seconds"/>	Highest Instance Time: <input type="text" value="21 Seconds"/>
Number of Instances: <input type="text" value="1"/>	


## PeopleSoft Task Details Field Descriptions

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

Field Name	Description
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions tab</a> to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> 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) - 20 (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.
<b>PeopleSoft Details</b>	This section contains assorted detailed information about the task.
Utility Agent	Name of the Linux/Unix or Windows Agent that will communicate with the PeopleSoft system. If you do not specify an Agent, you must specify an <a href="#">agent cluster</a> .
Utility Agent Variable	<p>If enabled, the <a href="#">Utility Agent</a> 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 <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 545 1919 699" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b> When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the <b>Utility Agent Variable</b> field to <b>Yes</b> and specify the Utility Agent variable in the <b>Utility Agent Unresolved</b> field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the <b>Utility Agent Variable</b> field to <b>No</b> and specify the Utility Agent reference in the <b>Utility Agent</b> field.</p> </div>
Utility Agent Cluster	Group of Agents, one of which the Controller will choose to run this task. 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 <a href="#">Agent Clusters</a> for more information.
Utility Agent Cluster Variable	<p>Indication of whether the <a href="#">Utility Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Utility Agent Cluster</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 1008 1919 1187" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b> When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the <b>Utility Agent Cluster Variable</b> field to <b>Yes</b> and specify the Utility Agent Cluster variable in the <b>Utility Agent Cluster Unresolved</b> field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the <b>Utility Agent Cluster Variable</b> field to <b>No</b> and specify the Utility Agent Cluster reference in the <b>Utility Agent Cluster</b> field.</p> </div>
Utility Credentials	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>


<p>Utility Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 256 1919 415" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b> When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>PeopleSoft Connection</p>	<p>Name of the <a href="#">PeopleSoft connection</a>. 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.</p>
<p>PeopleSoft Connection Variable</p>	<p>Indication of whether the <a href="#">PeopleSoft Connection</a> field is a reference field for selecting a specific <a href="#">PeopleSoft Connection</a> (unchecked) or a text field for specifying the <a href="#">#PeopleSoft Connection</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 695 1919 878" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b> When <a href="#">updating multiple Tasks</a>, to change from using a PeopleSoft Connection reference to using a PeopleSoft Connection variable, you must change the <b>PeopleSoft Connection Variable</b> field to <b>Yes</b> and specify the PeopleSoft Connection variable in the <b>PeopleSoft Connection Unresolved</b> field. Conversely, to change from using a PeopleSoft Connection variable to using a PeopleSoft Connection reference, you must change the <b>PeopleSoft Connection Variable</b> field to <b>No</b> and specify the PeopleSoft Connection reference in the <b>PeopleSoft Connection</b> field.</p> </div>
<p>PeopleSoft Credentials</p>	<p>Login credentials that the Controller will use to access the PeopleSoft system. The credentials are stored in the Universal Controller credentials table; see <a href="#">Credentials</a>.</p> <div data-bbox="317 1016 1919 1146" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b> Either the PeopleSoft Connection or the PeopleSoft 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.</p> </div>

<p>PeopleSoft Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>Command</p>	<p>PeopleSoft command to execute.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Schedule Process Schedule a process.</li> <li>• Schedule Job Schedule a job.</li> <li>• Run Jobset Run a job.</li> </ul> <p>Default is Schedule Process.</p>
<p>Run Control ID</p>	<p>If <a href="#">Command</a> = Schedule Process or Schedule Job; Run control ID to be used for the process submission.</p>
<p>Process Type</p>	<p>If <a href="#">Command</a> = Schedule Process or Schedule Job; Specific type of PeopleSoft process. (If <a href="#">Command</a> = Schedule Job, Process Type defaults to PSJob and is read-only.)</p>
<p>Process/Job Name</p>	<p>If <a href="#">Command</a> = Schedule Process or Schedule Job; Name of the PeopleSoft process/job.</p>
<p>Server Name</p>	<p>If <a href="#">Command</a> = Schedule Process or Schedule Job; Specific server name.If <a href="#">Command</a> = Schedule Process or Schedule Job; Specific server name.</p>
<p>Output Destination Type</p>	<p>If <a href="#">Command</a> = Schedule Process or Schedule Job; Type of output for the submitted process.</p>
<p>Output Destination Format</p>	<p>If <a href="#">Command</a> = Schedule Process or Schedule Job; Override of the default output format for the submitted process.</p>
<p>Output Destination String</p>	<p>If <a href="#">Command</a> = Schedule Process or Schedule Job; File path or printer destination for the output.</p>

Process File Name	If <b>Command</b> = Schedule Process or Schedule Job; Dependent file name.
Main Schedule Name	If <b>Command</b> = Run Jobset; Name of the jobset schedule.
Main Job Name	If <b>Command</b> = 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

<p>Exit Code Processing</p>	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Output Contains Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• Failure Output Contains Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• 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 <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul>
<p>Exit Codes</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
<p>Output Type</p>	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>
<p>Scan Output For</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>



<p>Automatic Output Retrieval</p>	<p>Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Wait For Output</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Specification that the task should wait for the requested output before completing.</p>
<p>Start Line</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated.</p> <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is <b>-1</b>, data will be retrieved starting at the end of the file.</li> </ul>
<p>Number of Lines</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <a href="#">Retrieve Output Default Number Of Lines</a> Universal Controller system property.</p>
<p>Scan Text</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <b>Number of Lines</b> above and below the first line matched.</p> <p>if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.</p>
<p>Automatic Output File</p>	<p>If Automatic Output Retrieval = File; Output file to return automatically.</p>
<p><b>PeopleSoft Distribution Details</b></p>	<p>If <a href="#">Command</a> = Schedule Process or Schedule Job; This section contains assorted distribution details about the task.</p>

Report Folder Name	If <b>Command</b> = Schedule Process or Schedule Job; Folder in which the report will be viewed in Report Manager.
Retention Days	If <b>Command</b> = 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 <b>Command</b> = Schedule Process; List of email addresses, separated by semicolons.
Email Subject	If <b>Command</b> = Schedule Process; Subject line of the email. If not specified, the default subject line is used.
Email Text	If <b>Command</b> = Schedule Process; Body of the email. If not specified, the default body message is used.
Email With Log	If <b>Command</b> = Schedule Process; Indication (checked or unchecked) for whether or not to attach log files resulting from the Structured Query Report. Only applicable if <b>Process Type</b> = SQR Report.
Email Web Report	If <b>Command</b> = Schedule Process; Indication (checked or unchecked) for whether or not to include a link to the completed report output. Only applicable if <b>Output Destination Type</b> = WEB.
Distribution Options	<p>If <b>Command</b> = Schedule Process; Recipients of the process output</p> <p>To add an option, click the + icon and enter:</p> <ul style="list-style-type: none"> <li>• <b>Distribution Id Type:</b> User or Role</li> <li>• <b>Distribution Id</b></li> </ul> <p>To delete an option, select in the list of variables and click the - icon.</p>
<b>Retry Options</b>	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 <b>Maximum Retries</b> field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.

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

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- System Default -- Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>


Early Finish	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	<p>If <a href="#">Early Finish Type</a> = 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.</p>
Early Finish Day Constraint	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Early Finish Nth Amount	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>



Early Finish Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.

<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b>            You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>• Specified in an enabled Trigger.</li> <li>• The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task instance.
<b>RunTime Parameters</b>	See <a href="#">Adding RunTime Parameters</a> , below.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.

<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="279 453 1959 787"> <tr> <td data-bbox="279 453 478 500"><b>Abort Action</b></td> <td data-bbox="478 453 1959 500">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="279 500 478 573"><b>Email Notification</b></td> <td data-bbox="478 500 1959 573">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="279 573 478 646"><b>Set Variable</b></td> <td data-bbox="478 573 1959 646">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="279 646 478 719"><b>SNMP Notification</b></td> <td data-bbox="478 646 1959 719">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="279 719 478 787"><b>System Operation</b></td> <td data-bbox="478 719 1959 787">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .										
<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .										
<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .										
<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<p><b>Virtual Resources</b></p>	<p>Lists all <a href="#">Virtual Resources</a> to which this task is assigned.</p>										
<p><b>Mutually Exclusive</b></p>	<p>Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.</p>										
<p><b>Instances</b></p>	<p>Lists all instances of the task.</p>										
<p><b>Triggers</b></p>	<p>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: &lt;current task name&gt;#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see <a href="#">Triggers</a>.</p>										
<p><b>Notes</b></p>	<p>Lists all <a href="#">notes</a> associated with this record.</p>										
<p><b>Versions</b></p>	<p>Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a>.</p>										

## Options Fields

Five PeopleSoft Task fields allow you to populate their drop-down lists with options retrieved from the PeopleSoft system:

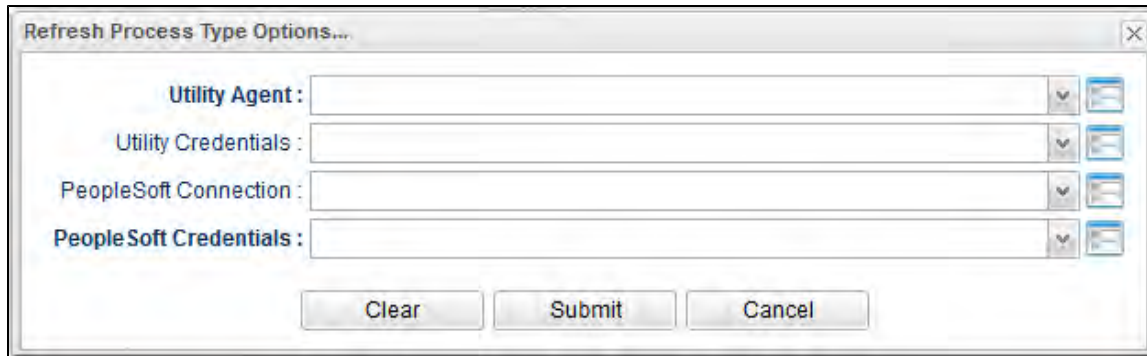
- Process Type
- Process/Job Name
- Server Name
- Output Destination Type
- Output Destination Format

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.

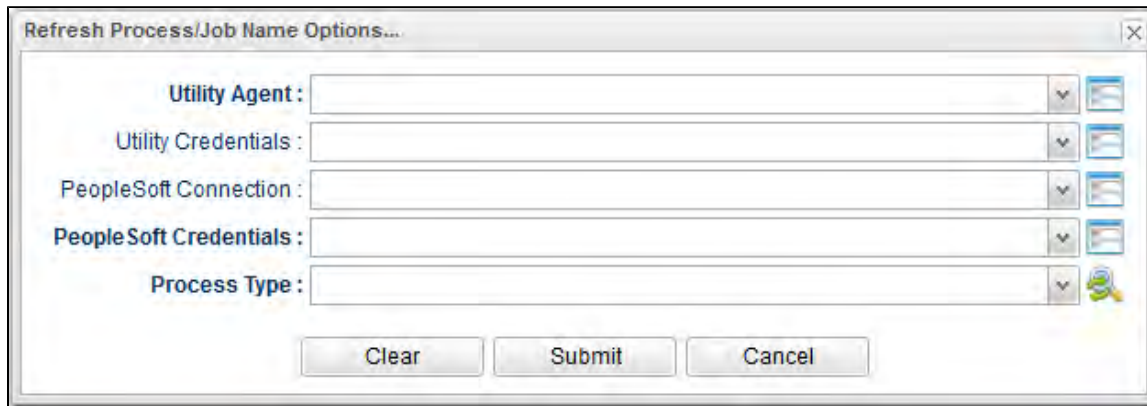
When you click the Submit button on the Refresh Options... dialog for an options field, the drop-down list for that field is populated with values that are determined by the values that you submitted on the Refresh Options... dialog.

### Process Type



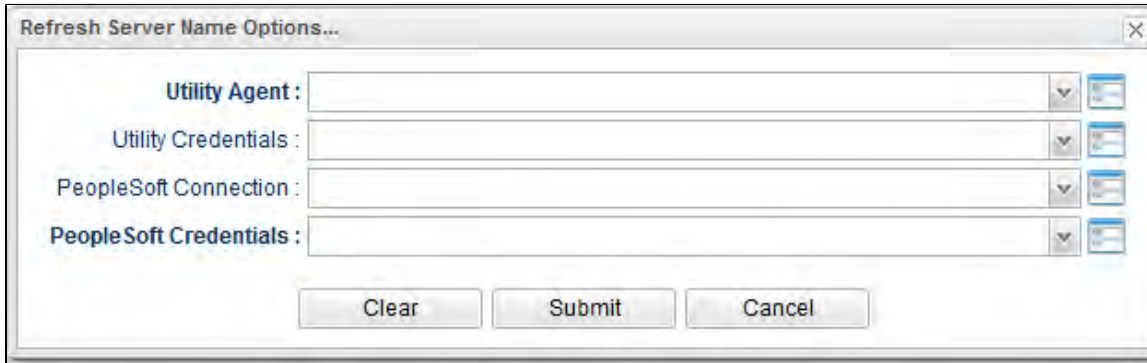
The dialog box titled "Refresh Process Type Options..." contains four fields: "Utility Agent", "Utility Credentials", "PeopleSoft Connection", and "PeopleSoft Credentials". Each field is a drop-down menu with a refresh icon to its right. At the bottom, there are three buttons: "Clear", "Submit", and "Cancel".

### Process/Job Name



The dialog box titled "Refresh Process/Job Name Options..." contains five fields: "Utility Agent", "Utility Credentials", "PeopleSoft Connection", "PeopleSoft Credentials", and "Process Type". Each field is a drop-down menu with a refresh icon to its right. At the bottom, there are three buttons: "Clear", "Submit", and "Cancel".

### Server Name



Refresh Server Name Options...

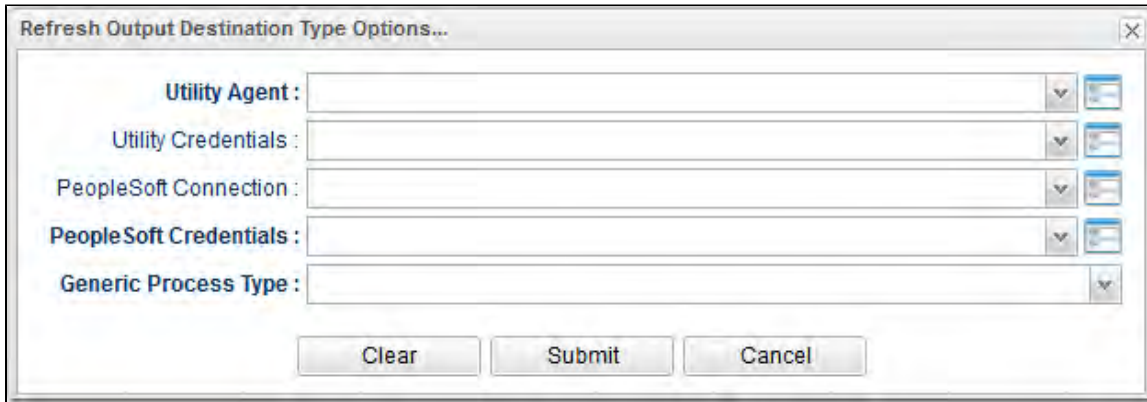
Utility Agent :

Utility Credentials :

PeopleSoft Connection :

PeopleSoft Credentials :

### Output Destination Type



Refresh Output Destination Type Options...

Utility Agent :

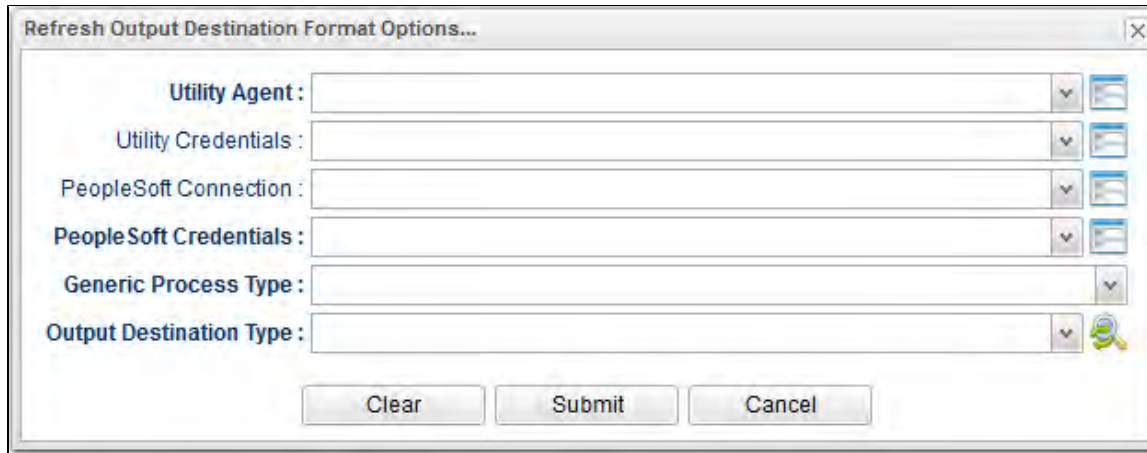
Utility Credentials :

PeopleSoft Connection :

PeopleSoft Credentials :

Generic Process Type :

### Output Destination Format



The image shows a dialog box titled "Refresh Output Destination Format Options...". It contains six dropdown menus, each with a small icon to its right. The dropdowns are labeled: "Utility Agent", "Utility Credentials", "PeopleSoft Connection", "PeopleSoft Credentials", "Generic Process Type", and "Output Destination Type". At the bottom of the dialog, there are three buttons: "Clear", "Submit", and "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 Re-run Retrieve Output... Delete Refresh Close

PeopleSoft Task Instance RunTime Parameters Virtual Resources Exclusive Requests Output Notes

**General**

Instance Name: stonebranch-peoplesofttask-01 Reference Id: 3

Task: stonebranch-peoplesofttask-01 Invoked By: Manually Launched

Task Description:

Member of Business Services: Execution User: stonebranch-Man

Calendar: System Default Time Zone Preference: -- System Default --

Virtual Resource Priority: 10 Hold Resources on Failure:

Test Field:

**Status**

Status: Success Exit Code: 0

Status Description:

Operational Memo:

Trigger Time: Launch Time: 2018-07-10 14:06:22 -0400

Start Time: 2018-07-10 14:06:25 -0400 End Time: 2018-07-10 14:06:56 -0400

Duration: 32 Seconds

Run Status: success Distribution Status: posted

Process Instance: 142223

**PeopleSoft Details**

Utility Agent: qa-x86 Utility Agent Cluster:

Utility Agent Variable:  Utility Agent Cluster Variable:

Utility Credentials: Utility Credentials Variable:

PeopleSoft Connection: PS PeopleSoft Credentials: PeopleSoft

PeopleSoft Connection Variable:  PeopleSoft Credentials Variable:

Command: Schedule Process

Run Control ID: ESS1A Process Type: Application Engine

Process/Job Name: TREEMOVER 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:

Exit Code Processing: Success Exitcode Range

Exit Codes: 0

Automatic Output Retrieval: Standard Output/Error

Start Line:  Number of Lines:   
 Scan Text:

**PeopleSoft Distribution Details**

Report Folder Name:  Retention Days:   
 Email Address List:   
 Email Subject:   
 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.	

**Retry Options**

Maximum Retries:  Retry Indefinitely:   
 Retry Interval (Seconds):  Suppress Intermediate Failures:   
 Current Retry Count:

**Statistics**

User Estimated End Time:  Average Estimated End Time:   
 Shortest Estimated End Time:  Longest 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
<b>General</b>	This section contains general information about the task instance.

Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
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	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>

Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	<p>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.</p>
<b>Status</b>	<p>This section contains information about the current status of the task instance.</p>
Status	<p>System-supplied; see <a href="#">Task Instance Statuses</a>.</p>
Exit Code	<p>System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).</p>
Status Description	<p>System-supplied; additional information, if any, about the status of the task instance.</p>
Operational Memo	<p>User-defined operational memo.</p>
Critical	<p>Indicates that this task is in the Critical Path of a workflow.</p>
Wait Until Time	<p>Amount of time calculated to wait before the task was started, based on <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> times.</p>
Queued Time	<p>System-supplied; Date and time the task was queued for processing.</p>
Trigger Time	<p>System-supplied; Date and time the task instance was triggered.</p>
Launch Time	<p>System-supplied; Date and time the task instance was launched.</p>
Start Time	<p>System-supplied; Date and time the task instance started.</p>

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.
<b>PeopleSoft Details</b>	This section contains assorted detailed information about the task.
Utility Agent	Name of the Linux/Unix or Windows Agent that will communicate with the PeopleSoft system. If you do not specify an Agent, you must specify an <a href="#">agent cluster</a> .
Utility Agent Variable	<p>If enabled, the <a href="#">Utility Agent</a> 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 <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the <b>Utility Agent Variable</b> field to <b>Yes</b> and specify the Utility Agent variable in the <b>Utility Agent Unresolved</b> field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the <b>Utility Agent Variable</b> field to <b>No</b> and specify the Utility Agent reference in the <b>Utility Agent</b> field.</p> </div>
Utility Agent Cluster	Group of Agents, one of which the Controller will choose to run this task. 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 <a href="#">Agent Clusters</a> for more information.


<p>Utility Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Utility Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Utility Agent Cluster</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the <b>Utility Agent Cluster Variable</b> field to <b>Yes</b> and specify the Utility Agent Cluster variable in the <b>Utility Agent Cluster Unresolved</b> field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the <b>Utility Agent Cluster Variable</b> field to <b>No</b> and specify the Utility Agent Cluster reference in the <b>Utility Agent Cluster</b> field.</p> </div>
<p>Utility Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>
<p>Utility Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>PeopleSoft Connection</p>	<p>Name of the <a href="#">PeopleSoft connection</a>. 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.</p>
<p>PeopleSoft Connection Variable</p>	<p>Indication of whether the <a href="#">PeopleSoft Connection</a> field is a reference field for selecting a specific <a href="#">PeopleSoft Connection</a> (unchecked) or a text field for specifying the <a href="#">#PeopleSoft Connection</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a PeopleSoft Connection reference to using a PeopleSoft Connection variable, you must change the <b>PeopleSoft Connection Variable</b> field to <b>Yes</b> and specify the PeopleSoft Connection variable in the <b>PeopleSoft Connection Unresolved</b> field. Conversely, to change from using a PeopleSoft Connection variable to using a PeopleSoft Connection reference, you must change the <b>PeopleSoft Connection Variable</b> field to <b>No</b> and specify the PeopleSoft Connection reference in the <b>PeopleSoft Connection</b> field.</p> </div>

<p>PeopleSoft Credentials</p>	<p>Login credentials that the Controller will use to access the PeopleSoft system. The credentials are stored in the Universal Controller credentials table; see <a href="#">Credentials</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      Either the PeopleSoft Connection or the PeopleSoft 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.</p> </div>
<p>PeopleSoft Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>Command</p>	<p>PeopleSoft command to execute.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Schedule Process</b> Schedule a process.</li> <li>• <b>Schedule Job</b> Schedule a job.</li> <li>• <b>Run Jobset</b> Run a job.</li> </ul> <p>Default is Schedule Process.</p>
<p>Run Control ID</p>	<p>If <b>Command</b> = Schedule Process or Schedule Job; Run control ID to be used for the process submission.</p>
<p>Process Type</p>	<p>If <b>Command</b> = Schedule Process or Schedule Job; Specific type of PeopleSoft process. (If <b>Command</b> = Schedule Job, Process Type defaults to PSJob and is read-only.)</p>
<p>Process/Job Name</p>	<p>If <b>Command</b> = Schedule Process or Schedule Job; Name of the PeopleSoft process/job.</p>
<p>Server Name</p>	<p>If <b>Command</b> = Schedule Process or Schedule Job; Specific server name. If <b>Command</b> = Schedule Process or Schedule Job; Specific server name.</p>

Output Destination Type	If <b>Command</b> = Schedule Process or Schedule Job; Type of output for the submitted process.
Output Destination Format	If <b>Command</b> = Schedule Process or Schedule Job; Override of the default output format for the submitted process.
Output Destination String	If <b>Command</b> = Schedule Process or Schedule Job; File path or printer destination for the output.
Process File Name	If <b>Command</b> = Schedule Process or Schedule Job; Dependent file name.
Main Schedule Name	If <b>Command</b> = Run Jobset; Name of the jobset schedule.
Main Job Name	If <b>Command</b> = 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



<p>Exit Code Processing</p>	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Output Contains Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• Failure Output Contains Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• 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 <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul>
<p>Exit Codes</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
<p>Output Type</p>	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>
<p>Scan Output For</p>	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>

<p>Automatic Output Retrieval</p>	<p>Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Wait For Output</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Specification that the task should wait for the requested output before completing.</p>
<p>Start Line</p>	<p>If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated.</p> <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is <b>-1</b>, data will be retrieved starting at the end of the file.</li> </ul>
<p>Number of Lines</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <a href="#">Retrieve Output Default Number Of Lines</a> Universal Controller system property.</p>
<p>Scan Text</p>	<p>If <a href="#">Automatic Output Retrieval</a> = 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 <b>Number of Lines</b> above and below the first line matched.</p> <p>if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.</p>
<p>Automatic Output File</p>	<p>If Automatic Output Retrieval = File; Output file to return automatically.</p>
<p><b>PeopleSoft Distribution Details</b></p>	<p>If <a href="#">Command</a> = Schedule Process or Schedule Job; This section contains assorted distribution details about the task.</p>

Report Folder Name	If <b>Command</b> = Schedule Process or Schedule Job; Folder in which the report will be viewed in Report Manager.
Retention Days	If <b>Command</b> = 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 <b>Command</b> = Schedule Process; List of email addresses, separated by semicolons.
Email Subject	If <b>Command</b> = Schedule Process; Subject line of the email. If not specified, the default subject line is used.
Email Text	If <b>Command</b> = Schedule Process; Body of the email. If not specified, the default body message is used.
Email With Log	If <b>Command</b> = Schedule Process; Indication (checked or unchecked) for whether or not to attach log files resulting from the Structured Query Report. Only applicable if <b>Process Type</b> = SQR Report.
Email Web Report	If <b>Command</b> = Schedule Process; Indication (checked or unchecked) for whether or not to include a link to the completed report output. Only applicable if <b>Output Destination Type</b> = WEB.
Distribution Options	<p>If <b>Command</b> = Schedule Process; Recipients of the process output</p> <p>To add an option, click the + icon and enter:</p> <ul style="list-style-type: none"> <li>• <b>Distribution Id Type:</b> User or Role</li> <li>• <b>Distribution Id</b></li> </ul> <p>To delete an option, select in the list of variables and click the - icon.</p>
<b>Retry Options</b>	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 <b>Maximum Retries</b> 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	<p>User-defined; If the task instance is in the <a href="#">Failed status</a>, indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made:</p> <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
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.
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Wait Time	If <a href="#">Wait To Start</a> = Time or Relative Time; Number of hours and minutes to wait before starting the task.

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>



Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <b>Early Finish Type</b> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <b>Early Finish Day Constraint</b> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <b>Early Finish Type</b> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <b>CP Duration Unit</b> 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.</p>

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>

Before Date	If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.
Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.

<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Retrieve Output</b>	See <a href="#">Retrieving Output</a> .
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>RunTime Parameters</b>	See <a href="#">Adding RunTime Parameters</a> , below.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Output</b>	<p>Displays output generated from the process, if any, based on specifications provided by the user in the <a href="#">Automatic Output Retrieval</a> fields in the task Details.</p> <p>If automatic output retrieval was not available or was not selected, output can be obtained by clicking the <a href="#">Retrieve Output</a> button.</p>

<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.
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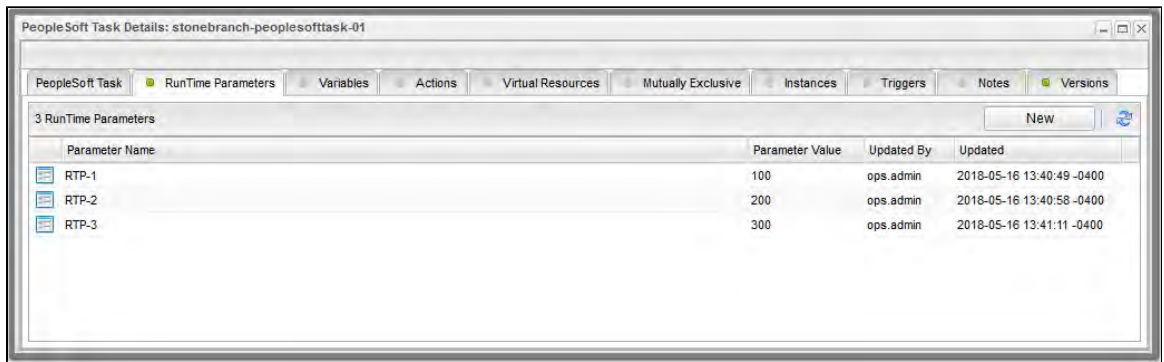
## Adding RunTime Parameters

You can add one or more RunTime Parameters for each PeopleSoft task, and define the values for those parameters, as described below.

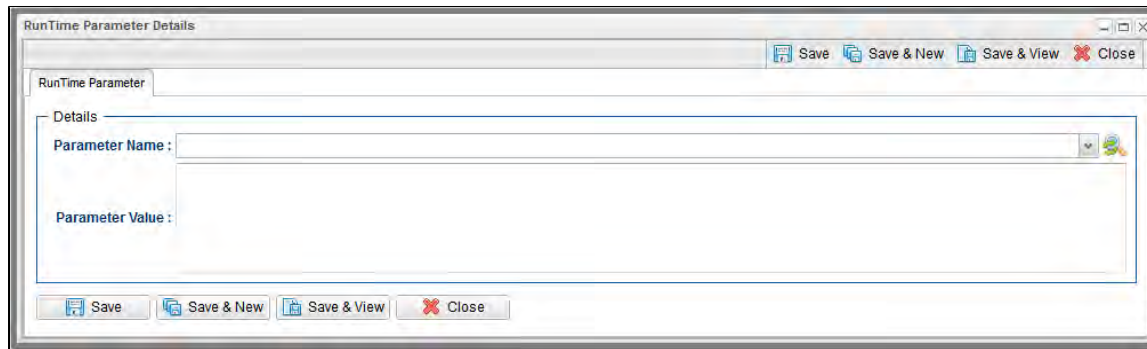
### Adding a Parameter

**Step 1** Open the Peoplesoft task to which you want to add the parameter.

**Step 2** 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.



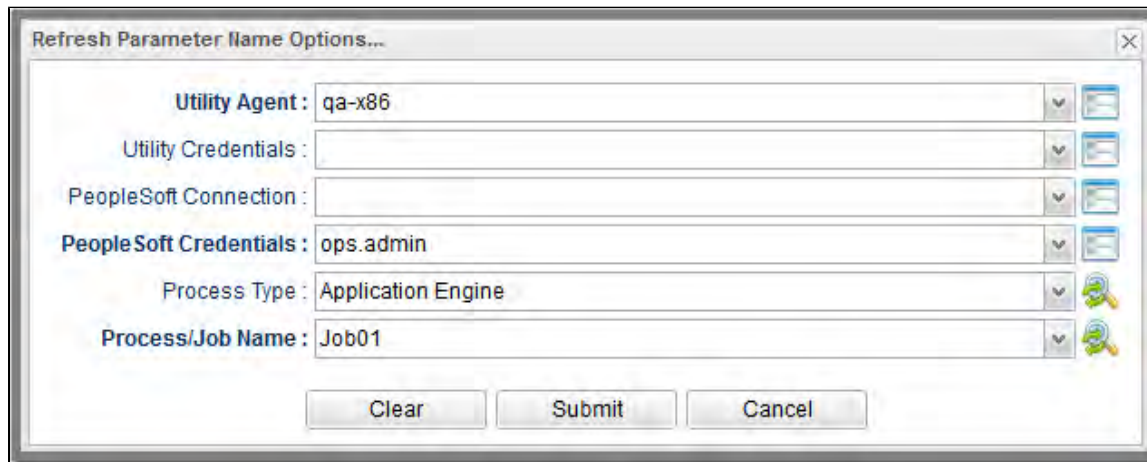
**Step 3** Click the **New** button to display RunTime Parameter Details.



**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.

**Step 4** Click the refresh picker icon next to the **Parameter Name** field to select options for the RunTime Parameter.



**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
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- Output Redirection
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- Specifying When a Task Runs
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### 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.

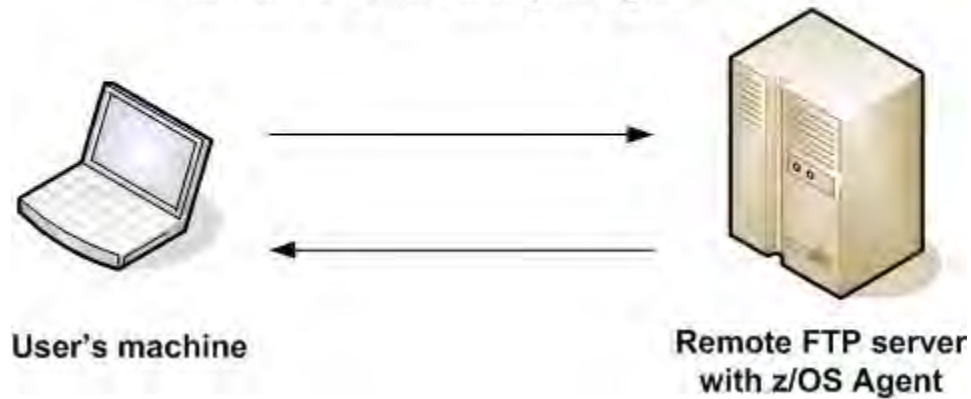
In the first example, the user wants to transfer a file from a remote File Transfer Server on a machine that does not have an Agent running on it. In this case, the File Transfer task definition provides an address and login credentials for the machine where the Agent is running as well as address and 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.



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.



## 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.

The screenshot shows the Automation Center interface. At the top, there are tabs for 'Dashboards' and 'File Transfer Tasks'. Below this, a navigation pane shows '5 File Transfer Tasks' with a 'Custom Filter -- None --' and a 'Filter...' button. A table lists the tasks:

Task Name	Task Description	Transfer Protocol	Updated By	Updated
stonebranch-filetransfertask-01		FTP	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-filetransfertask-02		UDM	ops.admin	2016-12-13 15:26:40 -0500
stonebranch-filetransfertask-03		FTP	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-filetransfertask-04		FTP	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-filetransfertask-05		UDM	ops.admin	2016-05-24 14:29:09 -0400

Below the table, the 'File Transfer Task Details' section is visible. It has tabs for 'File Transfer Task', 'Variables', 'Actions', 'Virtual Resources', 'Mutually Exclusive', 'Instances', 'Triggers', 'Notes', and 'Versions'. The 'General' tab is active, showing fields for:

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

The 'File Transfer Details' section shows:

- Transfer Protocol: FTP [Dropdown]
- Command: GET [Dropdown]
- Job Card (z/OS only): [Text Field]
- Subcommands (z/OS only): [Text Field]

<b>Step 2</b>	<p>Enter/select Details for a new File Transfer task, using the field descriptions below as a guide.</p> <ul style="list-style-type: none"> <li>• Required fields display in <b>boldface</b>.</li> <li>• Default values for fields, if available, display automatically.</li> </ul> <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> <li>• Use the scroll bar.</li> <li>• Temporarily <a href="#">hide the list</a> above the Details.</li> <li>• Click the <b>New</b> button above the list to display a pop-up version of the Details.</li> </ul>
<b>Step 3</b>	Click a <b>Save</b> 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.

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 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: 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:

**File Transfer Details**

Transfer Protocol: FTP Command: GET

Job Card (z/OS only): /FTPST1 JOB CLASS=A,MSGCLASS=X,NOTIFY=&SYSUID Subcommands (z/OS only):

Agent: DVZOS111 - NAHZOS52 Transfer Type: Binary

Agent Variable:  Transfer Mode: Passive

Agent Cluster: Agent Cluster Variable:  Remote Server: server 1

Cluster Broadcast: FTP Credentials: FTP Credentials Variable:

Credentials: Local Filename: file 1 Remote Filename: file 2

Use Regular Expression:  Move:

**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 --

Update Launch Task View Parents Copy Delete Refresh Close





## 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
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions tab</a> to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> it.
Hold Reason	Information about why the task will be put on hold when it starts.

<p>Virtual Resource Priority</p>	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
<p>Hold Resources on Failure</p>	<p>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.</p>
<p><b>File Transfer Details</b></p>	<p>This section contains assorted detailed information about the task.</p>
<p>Transfer Protocol</p>	<p>Type of transfer protocol for this file transfer.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• FTP</li> <li>• SFTP</li> <li>• UDM</li> <li>• FTPS</li> </ul>
<p>Command</p>	<p>File Transfer command being executed.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• GET - Copies a remote file to the local computer.</li> <li>• PUT - Copies a local file to the remote computer.</li> <li>• MGET - Copies multiple remote files to the local computer.</li> <li>• MPUT - Copies multiple local files to the remote computer.</li> <li>• DELETE - Deletes the specified file from the remote computer.</li> <li>• MDELETE - Deletes the specified file(s) from the remote computer</li> <li>• MKDIR - Creates the specified directory on the remote computer.</li> <li>• RMDIR - Removes the specified directory from the remote computer.</li> </ul>
<p>Job Card (z/OS only)</p>	<p>For z/OS, the job card information for the JCL statement. Example:</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <pre>//File TransferJOB01 JOB (File Transfer,001),FANNY,MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY=&amp;SYSUID,CLASS=A</pre> </div>
<p>Subcommands (z/OS only)</p>	<p>For z/OS, any subcommands used in the JCL statement.</p>

Agent	Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a> .
Agent Variable	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="340 354 1919 509" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>
Transfer Type	<p>Data format of the file being transferred.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Binary</li> <li>• ASCII</li> </ul>
Transfer Mode	<p>If <a href="#">Transfer Protocol</a> is FTP or FTPS; Transfer mode.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Active</li> <li>• Passive</li> <li>• Extended Passive</li> </ul>
Agent Cluster	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 <a href="#">Agent Clusters</a> for more information.
Agent Cluster Variable	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="340 1268 1919 1451" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>



Cluster Broadcast	Group of Agents, all of which will run this task (compare with Agent Cluster). You can specify a Cluster Broadcast in place 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.
Remote Server	Required if <a href="#">Transfer Protocol</a> = 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 <a href="#">FTP Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">FTP Credentials</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a> .  <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b> When updating multiple Tasks, to change from using an FTP Credentials reference to using an FTP Credentials variable, you must change the <b>FTP Credentials Variable</b> field to <b>Yes</b> and specify the FTP Credentials variable in the <b>FTP Credentials Unresolved</b> field. Conversely, to change from using an FTP Credentials variable to using an FTP Credentials reference, you must change the <b>FTP Credentials Variable</b> field to <b>No</b> and specify the FTP Credentials reference in the <b>FTP Credentials</b> field.</p> </div>
Credentials	<a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.  Required if the <a href="#">Agent Credentials Required</a> 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 <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a> .  <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b> When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
Local Filename	Required if <a href="#">Transfer Type</a> = 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 <a href="#">regular expression</a> in the <a href="#">Local Filename</a> field.

Remote Filename	Required if <a href="#">Transfer Type</a> = FTP or SFTP; path and file name on the remote server. That is, the "transfer to" file name.
Move	<p>If <a href="#">Transfer Protocol</a> = FTP, SFTP, or FTPS, and <a href="#">Command</a> = 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.</p> <p>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.</p>
<b>Retry Options</b>	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 <a href="#">Maximum Retries</a> field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	<p>User-defined; If the task instance is in the <a href="#">Failed status</a>, indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made:</p> <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Wait Time	If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.
Wait Day Constraint	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
Wait Duration	If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.

<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Delay Duration</p>	<p>If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.</p>
<p>Workflow Only</p>	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- System Default -- Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<p><b>Time Options</b></p>	<p>This section contains time-related specifications for the task.</p>
<p>Late Start</p>	<p>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 <a href="#">Late Start Type</a>). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.</p>
<p>Late Start Type</p>	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
<p>Late Start Time</p>	<p>If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.</p>

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>


Early Finish	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	<p>If <a href="#">Early Finish Type</a> = 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.</p>
Early Finish Day Constraint	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>

Early Finish Nth Amount	If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.
Early Finish Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.  Options: <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> Default is Minutes.
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.



<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.
<b>Launch Task</b>	Manually launches the task.

<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div data-bbox="340 350 1919 553" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>            You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>• Specified in an enabled Trigger.</li> <li>• The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.

<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="300 453 1959 786"> <tr> <td data-bbox="300 453 495 500"><b>Abort Action</b></td> <td data-bbox="495 453 1959 500">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="300 500 495 574"><b>Email Notification</b></td> <td data-bbox="495 500 1959 574">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="300 574 495 643"><b>Set Variable</b></td> <td data-bbox="495 574 1959 643">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="300 643 495 716"><b>SNMP Notification</b></td> <td data-bbox="495 643 1959 716">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="300 716 495 786"><b>System Operation</b></td> <td data-bbox="495 716 1959 786">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .										
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<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<p><b>Virtual Resources</b></p>	<p>Lists all <a href="#">Virtual Resources</a> to which this task is assigned.</p>										
<p><b>Mutually Exclusive</b></p>	<p>Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.</p>										
<p><b>Instances</b></p>	<p>Lists all instances of the task.</p>										
<p><b>Triggers</b></p>	<p>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: &lt;current task name&gt;#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see <a href="#">Triggers</a>.</p>										
<p><b>Notes</b></p>	<p>Lists all <a href="#">notes</a> associated with this record.</p>										
<p><b>Versions</b></p>	<p>Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a>.</p>										

## 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-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: 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:

**File Transfer Details**

Transfer Protocol: UDM

Utility Agent: DVZOS111 - NAHZOS52 Transfer Type: Binary

Utility Agent Variable:  Encrypt: NO

Utility Agent Cluster: Utility Agent Cluster Variable:  Compress: NO

Utility Agent Cluster Variable:  Codepage: -- None --

Utility Credentials: Utility Credentials Variable:  File Creation Option: -- None --

Utility Credentials Variable:  Trim Trailing Spaces:  Network Fault Tolerant:

Runtime Directory:

Form or Script: Form

Source Filename(s): file 1 Destination Filename(s): file 2

Use Regular Expression:

Source File System: -- None -- Destination File System: -- None --

Source UDM Agent: Destination UDM Agent:

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:




## 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
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions tab</a> to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> of the task instance will be resolved immediately at trigger/launch time.



<p>Time Zone Preference</p>	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
<p>Hold on Start</p>	<p>If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b>. The task runs when the user <a href="#">releases</a> it.</p>
<p>Hold Reason</p>	<p>Information about why the task will be put on hold when it starts.</p>
<p>Virtual Resource Priority</p>	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
<p>Hold Resources on Failure</p>	<p>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.</p>
<p><b>File Transfer Details</b></p>	<p>This section contains assorted detailed information about the task.</p>
<p>Transfer Protocol</p>	<p>Type of transfer protocol for this file transfer.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• FTP</li> <li>• SFTP</li> <li>• UDM</li> <li>• FTPS</li> </ul>
<p>Utility Agent</p>	<p>Name of the Windows or Linux/Unix Agent resource that will communicate with the Universal Command Agent. If you do not specify an Agent, you must specify an <a href="#">agent cluster</a>.</p>




<p>Utility Agent Variable</p>	<p>If enabled, the <a href="#">Utility Agent</a> 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: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 261 1919 415" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the <b>Utility Agent Variable</b> field to <b>Yes</b> and specify the Utility Agent variable in the <b>Utility Agent Unresolved</b> field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the <b>Utility Agent Variable</b> field to <b>No</b> and specify the Utility Agent reference in the <b>Utility Agent</b> field.</p> </div>
<p>Utility Agent Cluster</p>	<p>Group of Agents, one of which the Controller will choose to run this task. 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 <a href="#">Agent Clusters</a> for more information.</p>
<p>Utility Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Utility Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Utility Agent Cluster</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 721 1919 902" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the <b>Utility Agent Cluster Variable</b> field to <b>Yes</b> and specify the Utility Agent Cluster variable in the <b>Utility Agent Cluster Unresolved</b> field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the <b>Utility Agent Cluster Variable</b> field to <b>No</b> and specify the Utility Agent Cluster reference in the <b>Utility Agent Cluster</b> field.</p> </div>
<p>Utility Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>
<p>Utility Credentials Variable</p>	<p>Indication of whether the <a href="#">Utility Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Utility Credentials</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 1230 1919 1412" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Credentials reference to using a Utility Credentials variable, you must change the <b>Utility Credentials Variable</b> field to <b>Yes</b> and specify the Utility Credentials variable in the <b>Utility Credentials Unresolved</b> field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the <b>Utility Credentials Variable</b> field to <b>No</b> and specify the Utility Credentials reference in the <b>Utility Credentials</b> field.</p> </div>

<p>Transfer Type</p>	<p>Type of data transfer.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Binary</li> <li>• Text</li> </ul>
<p>Encrypt</p>	<p>The method of encryption that the Controller will use in the transfer.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• YES</li> <li>• NO (none)</li> <li>• RC4-SHA</li> <li>• RC4-MD5</li> <li>• AES256-SHA</li> <li>• AES128-SHA</li> <li>• DES-CBC3-SHA</li> <li>• DES-CBC-SHA</li> <li>• NULL-SHA</li> <li>• NULL-MD5</li> <li>• NULL-NULL</li> <li>• AES256-GCM-SHA384</li> <li>• AES128-GCM-SHA256</li> </ul>
<p>Compress</p>	<p>The type of data compression used in the transfer, if any.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• YES</li> <li>• NO</li> <li>• ZLIB</li> <li>• HASP</li> </ul>
<p>Codepage</p>	<p>Options:</p> <p>(See <a href="#">Code Pages</a>, below.)</p>
<p>File Creation Option</p>	<p>Specifies whether the transferred file should be created (new), appended, or replace any existing file.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None</li> <li>• APPEND</li> <li>• NEW</li> <li>• REPLACE</li> </ul>

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. <a href="#">Variables</a> supported.
Form or Script	Form or Script for this UDM File Transfer to use.
Source Filename(s)	Required; Path and file name on the source UDM server.
Use Regular Expression	Enables the use of a <a href="#">regular expression</a> in the <a href="#">Source Filename(s)</a> 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: <ul style="list-style-type: none"> <li>• None</li> <li>• DSN</li> <li>• HFS</li> <li>• LIB</li> </ul>
Destination File System	Type of file system on the destination server.  Options: <ul style="list-style-type: none"> <li>• None</li> <li>• DSN</li> <li>• HFS</li> <li>• LIB</li> </ul>
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).

<p>Source UDM Agent Option</p>	<p>Defines how you will specify the Source UDM Agent.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• UDM Agent - Source Agent is a UDM Agent defined in the Controller.</li> <li>• UDM Agent Variable - Source Agent will be defined by setting the variable in the <a href="#">Source UDM Agent</a> field.</li> <li>• UDM Agent Hostname - Source Agent runs on the host name specified in the <a href="#">Source UDM Agent</a> field.</li> </ul>
<p>Destination UDM Agent Option</p>	<p>Defines how you will specify the Destination UDM Agent.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• UDM Agent - Destination Agent is an UDM Agent defined in the Controller.</li> <li>• UDM Agent Variable - Destination Agent will be defined by setting the variable in the Destination UDM Agent field.</li> <li>• UDM Agent Hostname - Destination Agent runs on the host name specified in the Destination UDM Agent field.</li> </ul>
<p>Script</p>	<p>Name of the Script to execute for this File Transfer task.</p> <div data-bbox="317 712 1919 818" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b> If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.</p> </div>
<p>Source Credentials</p>	<p>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.</p>
<p>Destination Credentials</p>	<p>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.</p>
<p>Source Credentials Variable</p>	<p>Indication of whether the <a href="#">Source Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Source Credentials</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 1167 1919 1351" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b> When <a href="#">updating multiple Tasks</a>, to change from using a Source Credentials reference to using a Source Credentials variable, you must change the <b>Source Credentials Variable</b> field to <b>Yes</b> and specify the Source Credentials variable in the <b>Source Credentials Unresolved</b> field. Conversely, to change from using a Source Credentials variable to using a Source Credentials reference, you must change the <b>Source Credentials Variable</b> field to <b>No</b> and specify the Source Credentials reference in the <b>Source Credentials</b> field.</p> </div>

<p>Destination Credentials Variable</p>	<p>Indication of whether the <a href="#">Destination Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Destination Credentials</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Destination Credentials reference to using a Destination Credentials variable, you must change the <b>Destination Credentials Variable</b> field to <b>Yes</b> and specify the Destination Credentials variable in the <b>Destination Credentials Unresolved</b> field. Conversely, to change from using a Destination Credentials variable to using a Destination Credentials reference, you must change the <b>Destination Credentials Variable</b> field to <b>No</b> and specify the Destination Credentials reference in the <b>Destination Credentials</b> field.</p> </div>
<p>Append Source Open Options</p>	<p>Any additional free form open command options for the source (primary) transfer server.</p>
<p>Append Destination Open Option</p>	<p>Any additional free form open command options for the destination (secondary) transfer server.</p>
<p>Append UDM Options</p>	<p>Any additional free-form Universal Data Mover command options.</p>
<p>Exit Code Processing</p>	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Success Exitcode Range</b> Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• <b>Failure Exitcode Range</b> Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• <b>Success Output Contains</b> Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• <b>Failure Output Contains</b> Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> </ul>
<p>Output Type-Exit Code</p>	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>

Exit Codes	Required if <a href="#">Exit Code Processing</a> = 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.
Scan Output For	Required if <a href="#">Exit Code Processing</a> = 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 <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.
<b>Retry Options</b>	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 <a href="#">Exit Codes</a> field. <a href="#">Maximum Retries</a> must be greater than 0.  If this field is empty, any exit code potentially will cause a retry.
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 <a href="#">Maximum Retries</a> field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the <a href="#">Failed status</a> , indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made: <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.

<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>

Wait Duration In Seconds	If <a href="#">Wait To Start</a> = 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: <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.  Options are: <ul style="list-style-type: none"> <li>• -- System Default -- Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>



Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.
Late Start Duration	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
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 <a href="#">Late Finish Type</a> ). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Late Finish Time	If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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 Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.

<b>Update</b>	Saves updates to the record.										
<b>Launch Task</b>	Manually launches the task.										
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.										
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.										
<b>Delete</b>	Deletes the current record.										
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.										
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.										
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.										
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.										
<b>Actions</b>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1"> <tr> <td><b>Abort Action</b></td> <td>Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td><b>Email Notification</b></td> <td>Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td><b>Set Variable</b></td> <td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td><b>SNMP Notification</b></td> <td>Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td><b>System Operation</b></td> <td>Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
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<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										

<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Mutually Exclusive</b>	Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.
<b>Instances</b>	Lists all instances of the task.
<b>Triggers</b>	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 <a href="#">Triggers</a> .
<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.
<b>Versions</b>	Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a> .

## 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 Re-run View Parent Delete Refresh Close

File Transfer Task Instance Virtual Resources Exclusive Requests Output Notes

**General**

Instance Name: stonebranch-filetransfertask-01 Reference Id: 4

Task: stonebranch-filetransfertask-01 Invoked By: Manually Launched

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 Exit Code: 0

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: 2 Seconds

**File Transfer Details**

Transfer Protocol: FTP Command: GET

Job Card (z/OS only): //FTPTST1 JOB CLASS=A,MSGCLASS=X,NOTIFY=&SYSUID

Subcommands (z/OS only):

Agent: DVZOS111 - NAHZOS52 Transfer Type: Binary

Agent Variable:

Agent Cluster: Remote Server: ZOS1

Agent Cluster Variable:

Credentials: stonebranch-credential-01 FTP Credentials: stonebranch-credential-02

Credentials Variable:

Local Filename: data1.test Remote Filename: data2.test

FTP Credentials Variable:

Use Regular Expression:

**Retry Options**

Retry Exit Codes:

Maximum Retries: 0 Retry Indefinitely:

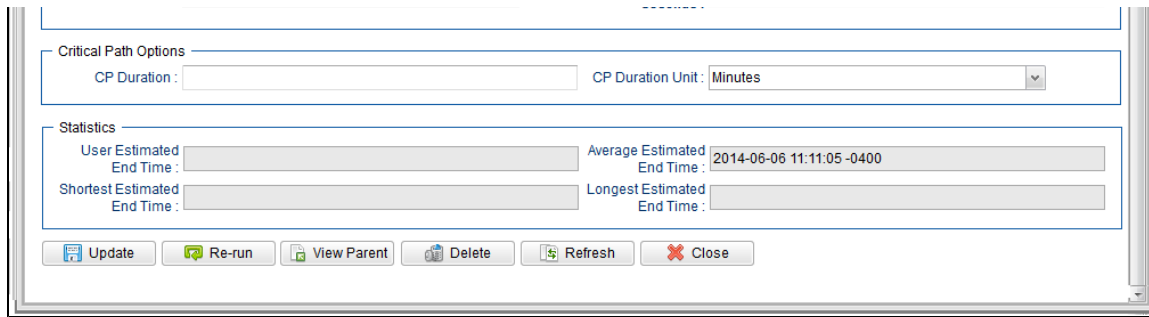
Retry Interval (Seconds): 60 Suppress Intermediate Failures:

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



## 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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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: <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Task Description	Description of this record. (Maximum = 200 characters.)





Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
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) - 20 (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.
<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.
<b>File Transfer Details</b>	This section contains assorted detailed information about the task instance.
Transfer Protocol	Type of transfer protocol for this file transfer.  Options: <ul style="list-style-type: none"> <li>• FTP</li> <li>• SFTP</li> <li>• UDM</li> <li>• FTPS</li> </ul>

<p>Command</p>	<p>File Transfer command being executed.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• GET - Copies a remote file to the local computer.</li> <li>• PUT - Copies a local file to the remote computer.</li> <li>• MGET - Copies multiple remote files to the local computer.</li> <li>• MPUT - Copies multiple local files to the remote computer.</li> <li>• DELETE - Deletes the specified file from the remote computer.</li> <li>• MDELETE - Deletes the specified file(s) from the remote computer</li> <li>• MKDIR - Creates the specified directory on the remote computer.</li> <li>• RMDIR - Removes the specified directory from the remote computer.</li> </ul>
<p>Job Card (z/OS only)</p>	<p>For z/OS, the job card information for the JCL statement. Example:</p> <pre style="border: 1px solid #ccc; padding: 10px; background-color: #f9f9f9;">//File TransferJOB01 JOB (File Transfer,001),FANNY,MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY=&amp;SYSUID,CLASS=A</pre>
<p>Subcommands (z/OS only)</p>	<p>For z/OS, any subcommands used in the JCL statement.</p>
<p>Agent</p>	<p>Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a>.</p>
<p>Agent Variable</p>	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: <code>\$(variable name)</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b></p> <p>When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>
<p>Transfer Type</p>	<p>Data format of the file being transferred.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Binary</li> <li>• ASCII</li> </ul>

<p>Transfer Mode</p>	<p>If <a href="#">Transfer Protocol</a> is FTP or FTPS; Transfer mode.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Active</li> <li>• Passive</li> <li>• Extended Passive</li> </ul>
<p>Agent Cluster</p>	<p>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 <a href="#">Agent Clusters</a> for more information.</p>
<p>Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                  When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>
<p>Cluster Broadcast</p>	<p>Group of Agents, all of which will run this task (compare with Agent Cluster). You can specify a Cluster Broadcast in place 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.</p>
<p>Remote Server</p>	<p>Required if <a href="#">Transfer Protocol</a> = 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.</p> <p>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".</p>
<p>FTP Credentials</p>	<p>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.</p>

<p>FTP Credentials Variable</p>	<p>Indication of whether the <a href="#">FTP Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">FTP Credentials</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an FTP Credentials reference to using an FTP Credentials variable, you must change the <b>FTP Credentials Variable</b> field to <b>Yes</b> and specify the FTP Credentials variable in the <b>FTP Credentials Unresolved</b> field. Conversely, to change from using an FTP Credentials variable to using an FTP Credentials reference, you must change the <b>FTP Credentials Variable</b> field to <b>No</b> and specify the FTP Credentials reference in the <b>FTP Credentials</b> field.</p> </div>
<p>Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>
<p>Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>Local Filename</p>	<p>Required if <a href="#">Transfer Type</a> = FTP or SFTP; path and file name on the local server. That is, the "transfer from" file name.</p>
<p>Use Regular Expression</p>	<p>Enables the use of a <a href="#">regular expression</a> in the <a href="#">Local Filename</a> field.</p>
<p>Remote Filename</p>	<p>Required if <a href="#">Transfer Type</a> = FTP or SFTP; path and file name on the remote server. That is, the "transfer to" file name.</p>
<p>Move</p>	<p>If <a href="#">Transfer Protocol</a> = FTP, SFTP, or FTPS, and <a href="#">Command</a> = 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.</p> <p>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.</p>
<p><b>Retry Options</b></p>	<p>This section contains specifications for retrying the task.</p>

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

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.



<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>
<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>


<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>

Early Finish	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
Finished Early	<p>System-supplied; this field is flagged if the task finished earlier than the time specified in the <a href="#">Early Finish</a> fields.</p>
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	<p>If <a href="#">Early Finish Type</a> = 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.</p>

<p>Early Finish Day Constraint</p>	<p>If <b>Early Finish Type</b> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Duration</p>	<p>If <b>Early Finish Type</b> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <b>CP Duration Unit</b> 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.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <b>CP Duration</b> 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 <b>CP Duration</b> 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 <b>CP Duration</b>. If the Controller is unable to resolve <b>CP Duration</b> or it resolves to an invalid value, <b>CP Duration</b> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>

<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>

Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .

<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Output</b>	<p>Displays output generated from the process.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;">  <b>Note</b>                      For File Transfer task instances, output always is automatically retrieved and is available from the Output tab.                 </div>
<b>Notes</b>	Lists all <a href="#">notes</a> 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](#).

Update Re-run View Parent Delete Refresh Close

File Transfer Task Instance
Virtual Resources
Exclusive Requests
Output
Notes

**General**

Instance Name:  Reference Id:

Task:  Invoked By:

Task Description:

Member of Business Services:  Execution User:

Calendar:  Time Zone Preference:

Virtual Resource Priority:  Hold Resources on Failure:

**Status**

Status:  Exit Code:

Status Description:

Operational Memo:

Wait Until Time:

Queued Time:

Trigger Time:  Start Time:

Launch Time:  End Time:

Duration:

**File Transfer Details**

Transfer Protocol:

Utility Agent:  Transfer Type:

Utility Agent Variable:

Utility Agent Cluster:  Encrypt:

Utility Agent Cluster Variable:

Utility Credentials:  Compress:

Utility Credentials Variable:

File Creation Option:

Trim Trailing Spaces:

Network Fault Tolerant:

Runtime Directory:

Form or Script:

Local Filename:  Remote Filename:

Use Regular Expression:

Source File System:  Destination File System:

Source UDM Agent:  Destination Infran Agent:

Source UDM Agent Option:  Destination Infran Agent Option:

Source Credentials:  Destination Credentials:

Source Credentials Variable:  Destination Credentials Variable:

Append Source Open Options:  Append Destination Open:



Open Options : \_\_\_\_\_ Options : \_\_\_\_\_

Append UDM Options : \_\_\_\_\_

Exit Code Processing : Success Exitcode Range [v]  
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 [v]      Wait Duration In Seconds : 30

Delay On Start : Seconds [v]      Delay Duration In Seconds : 30

**Critical Path Options**

CP Duration : \_\_\_\_\_ CP Duration Unit : Minutes [v]

**Statistics**

User Estimated End Time : \_\_\_\_\_ Average Estimated End Time : 2014-07-22 11:09:33 -0400

Shortest Estimated End Time : 2014-07-22 11:09:33 -0400      Longest Estimated End Time : 2014-07-22 11:09:34 -0400

[Update] [Re-run] [View Parent] [Delete] [Refresh] [Close]



## 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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.

<p>Invoked by</p>	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Trigger: (Trigger Name)</b> Instance was launched by the named trigger.</li> <li>• <b>Workflow: (Workflow Name)</b> Instance was launched by the named workflow.</li> <li>• <b>Manually Launched</b> Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
<p>Task Description</p>	<p>Description of this record. (Maximum = 200 characters.)</p>
<p>Member of Business Services</p>	<p>User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.</p>
<p>Execution User</p>	<p>System-supplied; If the task was launched manually; ID of the user who launched it.</p>
<p>Calendar</p>	<p>Calendar associated with the task instance.</p>
<p>Time Zone Preference</p>	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>– System Default –</b> Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• <b>Server (xxx)</b> Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• <b>Inherited</b> Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.</li> </ul>
<p>Virtual Resource Priority</p>	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
<p>Hold Resources on Failure</p>	<p>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.</p>



<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.

<b>File Transfer Details</b>	This section contains assorted detailed information about the task instance.
Transfer Protocol	Type of transfer protocol for this file transfer.  Options: <ul style="list-style-type: none"> <li>• FTP</li> <li>• SFTP</li> <li>• UDM</li> <li>• FTPS</li> </ul>
Utility Agent	Name of the Windows or Linux/Unix Agent resource that will communicate with the Universal Command Agent. If you do not specify an Agent, you must specify an <a href="#">agent cluster</a> .
Utility Agent Variable	If enabled, the <a href="#">Utility Agent</a> 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 <a href="#">Variables and Functions</a> .  <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent reference to using a Utility Agent variable, you must change the <b>Utility Agent Variable</b> field to <b>Yes</b> and specify the Utility Agent variable in the <b>Utility Agent Unresolved</b> field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the <b>Utility Agent Variable</b> field to <b>No</b> and specify the Utility Agent reference in the <b>Utility Agent</b> field.</p> </div>
Utility Agent Cluster	Group of Agents, one of which the Controller will choose to run this task. 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 <a href="#">Agent Clusters</a> for more information.
Utility Agent Cluster Variable	Indication of whether the <a href="#">Utility Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Utility Agent Cluster</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a> .  <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the <b>Utility Agent Cluster Variable</b> field to <b>Yes</b> and specify the Utility Agent Cluster variable in the <b>Utility Agent Cluster Unresolved</b> field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the <b>Utility Agent Cluster Variable</b> field to <b>No</b> and specify the Utility Agent Cluster reference in the <b>Utility Agent Cluster</b> field.</p> </div>

<p>Utility Credentials</p>	<p><b>Credentials</b> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <b>Agent Credentials Required</b> 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.</p>
<p>Utility Credentials Variable</p>	<p>Indication of whether the <b>Utility Credentials</b> field is a reference field for selecting a specific <b>Credential</b> (unchecked) or a text field for specifying the <b>Utility Credentials</b> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 428 1919 609" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                  When <a href="#">updating multiple Tasks</a>, to change from using a Utility Credentials reference to using a Utility Credentials variable, you must change the <b>Utility Credentials Variable</b> field to <b>Yes</b> and specify the Utility Credentials variable in the <b>Utility Credentials Unresolved</b> field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the <b>Utility Credentials Variable</b> field to <b>No</b> and specify the Utility Credentials reference in the <b>Utility Credentials</b> field.</p> </div>
<p>Transfer Type</p>	<p>Type of data transfer.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Binary</li> <li>• Text</li> </ul>
<p>Encrypt</p>	<p>The method of encryption that the Controller will use in the transfer.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• YES</li> <li>• NO (none)</li> <li>• RC4-SHA</li> <li>• RC4-MD5</li> <li>• AES256-SHA</li> <li>• AES128-SHA</li> <li>• DES-CBC3-SHA</li> <li>• DES-CBC-SHA</li> <li>• NULL-SHA</li> <li>• NULL-MD5</li> <li>• NULL-NULL</li> <li>• AES256-GCM-SHA384</li> <li>• AES128-GCM-SHA256</li> </ul>

Compress	<p>The type of data compression used in the transfer, if any.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• YES</li> <li>• NO</li> <li>• ZLIB</li> <li>• HASP</li> </ul>
Codepage	Options: (see <a href="#">Code Pages</a> , below)
File Creation Option	<p>Specifies whether the transferred file should be created (new), appended, or replace any existing file.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None</li> <li>• APPEND</li> <li>• NEW</li> <li>• REPLACE</li> </ul>
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. <a href="#">Variables</a> supported.
Source Filename(s)	Required; Path and file name on the source UDM server.
Use Regular Expression	Enables the use of a <a href="#">regular expression</a> in the <a href="#">Source Filename(s)</a> field.
Destination Filename	Required; Path and file name on the destination UDM server.

Source File System	<p>Type of file system on the source server.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None</li> <li>• DSN</li> <li>• HFS</li> <li>• LIB</li> </ul>
Destination File System	<p>Type of file system on the destination server.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None</li> <li>• DSN</li> <li>• HFS</li> <li>• LIB</li> </ul>
Source UDM Agent	<p>Required; Name of the Agent resource defined in the Controller that describes the source UDM Agent machine (primary transfer server).</p>
Destination UDM Agent	<p>Required; Name of the Agent resource defined in the Controller that provides details about the destination UDM Agent machine (secondary transfer server).</p>
Source UDM Agent Option	<p>Defines how you will specify the Source UDM Agent.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• UDM Agent - Source Agent is a UDM Agent defined in the Controller.</li> <li>• UDM Agent Variable - Source Agent will be defined by setting the variable in the <a href="#">Source UDM Agent</a> field.</li> <li>• UDM Agent Hostname - Source Agent runs on the host name specified in the <a href="#">Source UDM Agent</a> field.</li> </ul>
Destination UDM Agent Option	<p>Defines how you will specify the Destination UDM Agent.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• UDM Agent - Destination Agent is an UDM Agent defined in the Controller.</li> <li>• UDM Agent Variable - Destination Agent will be defined by setting the variable in the <a href="#">Destination UDM Agent</a> field.</li> <li>• UDM Agent Hostname - Destination Agent runs on the host name specified in the <a href="#">Destination UDM Agent</a> field.</li> </ul>
Source Credentials	<p>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.</p>

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	<p>Indication of whether the <a href="#">Source Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Source Credentials</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 354 1919 532" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Source Credentials reference to using a Source Credentials variable, you must change the <b>Source Credentials Variable</b> field to <b>Yes</b> and specify the Source Credentials variable in the <b>Source Credentials Unresolved</b> field. Conversely, to change from using a Source Credentials variable to using a Source Credentials reference, you must change the <b>Source Credentials Variable</b> field to <b>No</b> and specify the Source Credentials reference in the <b>Source Credentials</b> field.</p> </div>
Destination Credentials Variable	<p>Indication of whether the <a href="#">Destination Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Destination Credentials</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 699 1919 878" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Destination Credentials reference to using a Destination Credentials variable, you must change the <b>Destination Credentials Variable</b> field to <b>Yes</b> and specify the Destination Credentials variable in the <b>Destination Credentials Unresolved</b> field. Conversely, to change from using a Destination Credentials variable to using a Destination Credentials reference, you must change the <b>Destination Credentials Variable</b> field to <b>No</b> and specify the Destination Credentials reference in the <b>Destination Credentials</b> field.</p> </div>
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.



Exit Code Processing	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Output Contains Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• Failure Output Contains Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> </ul>
Output Type-Exit Code	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> </ul>
Exit Codes	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
Scan Output For	<p>Required if <a href="#">Exit Code Processing</a> = 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.</p>
Output File-Exit Codes	<p>Required if <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.</p>
<b>Retry Options</b>	<p>This section contains specifications for retrying the task.</p>
Retry Exit Codes	<p>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 <a href="#">Exit Codes</a> field. <a href="#">Maximum Retries</a> must be greater than 0.</p> <p>If this field is empty, any exit code potentially will cause a retry.</p>
Maximum Retries	<p>User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.</p>
Retry Indefinitely	<p>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 <a href="#">Maximum Retries</a> field.</p>

<p>Retry Interval</p>	<p>User-defined; number of seconds between each retry.</p>
<p>Current Retry Count</p>	<p>System-supplied; current number of times that the Controller has retried the task after it first went to failure status.</p>
<p>Suppress Intermediate Failures</p>	<p>User-defined; If the task instance is in the <a href="#">Failed status</a>, indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made:</p> <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
<p>Next Retry Time</p>	<p>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.</p>
<p><b>Wait / Delay Options</b></p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <a href="#">Wait To Start</a> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>


Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>



<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>

Before Date	If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.
Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	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 <a href="#">User Estimated Duration</a> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).

<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Output</b>	<p>Displays output generated from the process.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;">  <b>Note</b>                      For File Transfer task instances, output always is automatically retrieved and is available from the Output tab.                 </div>
<b>Notes</b>	Lists all <a href="#">notes</a> 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 enclosed 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

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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:

<b>Step 1</b>	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 <b>Started Time</b> in the Manual task instance to the time that the task instance went into the ACTION REQUIRED status.
<b>Step 2</b>	Optionally, you can re-set the <b>Started Time</b> of the Manual task by issuing the <b>Set Started</b> command. Either: <ol style="list-style-type: none"> <li>1. On the Activity Monitor, right-click the Manual task and select <b>Set Started</b>.</li> <li>2. On the Workflow Monitor, right-click the Manual task and select <b>Commands &gt; Set Started</b>.</li> </ol>
<b>Step 3</b>	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: <ol style="list-style-type: none"> <li>1. On the Activity Monitor, right-click the Manual task and select <b>Set Completed</b>.</li> <li>2. On the Workflow Monitor, right-click the Manual task and select <b>Commands &gt; Set Completed</b>.</li> </ol>
<b>Step 4</b>	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 <b>Force Finish</b> .



### 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.

The screenshot displays the 'Manual Tasks' section of the Automation Center. At the top, there are tabs for 'Dashboards' and 'Manual Tasks'. Below this is a list of 5 Manual Tasks with columns for Task Name, Task Description, Updated By, and Updated. The tasks listed are 'stonebranch-manualtask-01' through 'stonebranch-manualtask-05', all updated by 'ops.admin'.

Below the list is the 'Manual Task Details' form. The form has tabs for 'Manual Task', 'Variables', 'Actions', 'Virtual Resources', 'Mutually Exclusive', 'Instances', 'Triggers', 'Notes', and 'Versions'. The 'Manual Task' tab is active, showing a 'General' section with the following fields:

- Task Name: [Text Input]
- Task Description: [Text Input]
- Member of: [Text Input]
- Business Services: [Dropdown Menu]
- Resolve Name Immediately:
- Hold on Start:
- Virtual Resource Priority: [Dropdown Menu, value: 10]
- Time Zone Preference: [Dropdown Menu, value: -- System Default --]
- Hold Resources on Failure:

Below the 'General' section is the 'Wait/Delay Options' section with the following fields:

- Wait To Start: [Dropdown Menu, value: -- None --]
- Delay On Start: [Dropdown Menu, value: -- None --]

<b>Step 2</b>	<p>Enter/select Details for a new Manual task, using the <a href="#">field descriptions</a> below as a guide.</p> <ul style="list-style-type: none"> <li>• Required fields display in <b>boldface</b>.</li> <li>• Default values for fields, if available, display automatically.</li> </ul> <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> <li>• Use the scroll bar.</li> <li>• Temporarily <a href="#">hide the list</a> above the Details.</li> <li>• Click the <b>New</b> button above the list to display a pop-up version of the Details.</li> </ul>
<b>Step 3</b>	Click a <b>Save</b> 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:

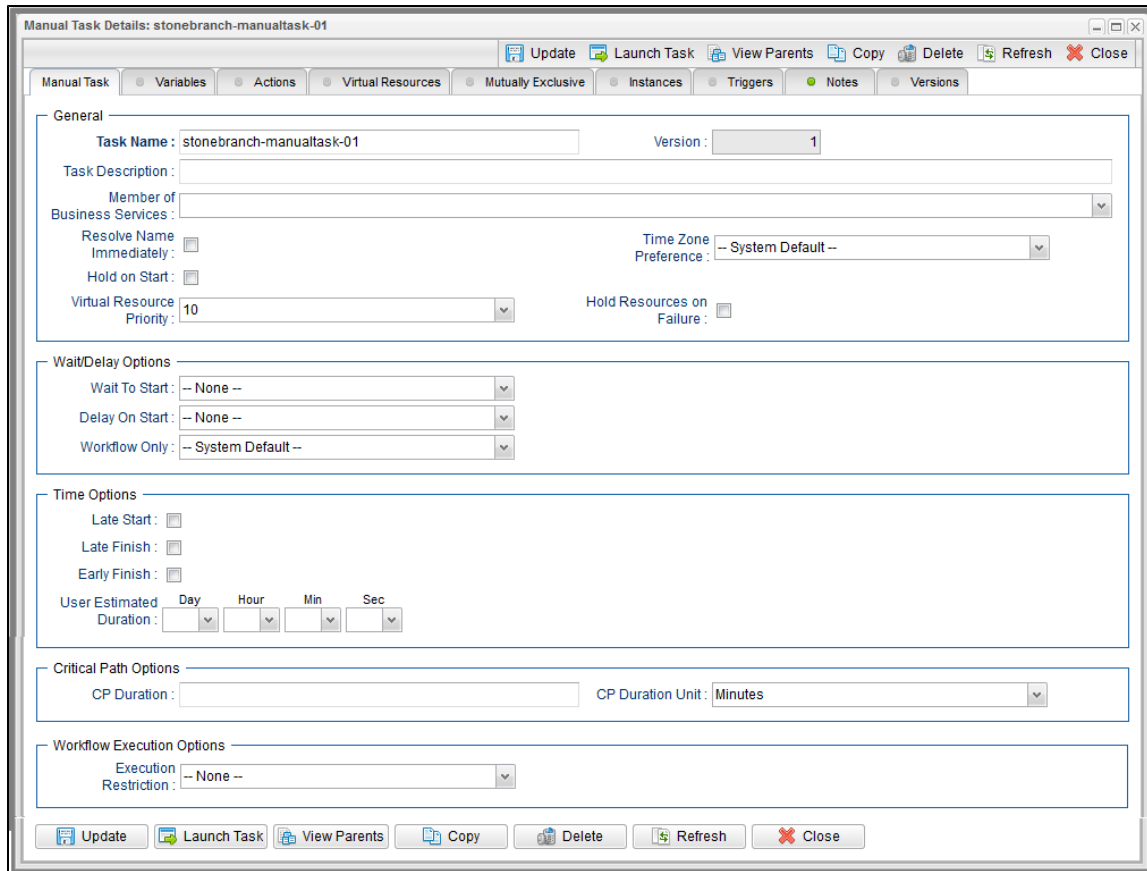
- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the [Details icon](#) next to a record name in the list, or right-click a record in the list and then click **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.





## Manual Task Field Descriptions

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

Field Name	Description
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <i>variables</i> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions tab</a> to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> 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) - 20 (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.
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.

<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>

Wait Duration In Seconds	If <a href="#">Wait To Start</a> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - - System Default - - Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>

<p>Late Start Time</p>	<p>If <b>Late Start Type</b> = Time; Time after which the task <b>start time</b> is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Start Day Constraint</p>	<p>If <b>Late Start Type</b> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Start Nth Amount</p>	<p>If <b>Late Start Day Constraint</b> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <b>Late Start Type</b> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <b>Hold on Start</b> 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.</p>

Late Finish	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>
Late Finish Type	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Late Finish Time	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
Late Finish Day Constraint	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Late Finish Nth Amount	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>


<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>
<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>

<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p>User Estimated Duration</p>	<p>Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>



<p><b>Execution Restriction</b></p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p><b>Restriction Period</b></p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p><b>Before Date</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p><b>Before Time</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p><b>After Date</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p><b>After Time</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p><b>Date List</b></p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.

<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Details that provide access to additional information about the task.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.

<b>Actions</b>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="275 453 1961 787"> <tr> <td data-bbox="275 453 472 500"> <b>Abort Action</b> </td> <td data-bbox="472 453 1961 500">                     Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.                 </td> </tr> <tr> <td data-bbox="275 500 472 573"> <b>Email Notification</b> </td> <td data-bbox="472 500 1961 573">                     Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.                 </td> </tr> <tr> <td data-bbox="275 573 472 646"> <b>Set Variable</b> </td> <td data-bbox="472 573 1961 646">                     Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.                 </td> </tr> <tr> <td data-bbox="275 646 472 719"> <b>SNMP Notification</b> </td> <td data-bbox="472 646 1961 719">                     Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.                 </td> </tr> <tr> <td data-bbox="275 719 472 787"> <b>System Operation</b> </td> <td data-bbox="472 719 1961 787">                     Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.                 </td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .										
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<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.										
<b>Mutually Exclusive</b>	Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.										
<b>Instances</b>	Lists all instances of the task.										
<b>Triggers</b>	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 <a href="#">Triggers</a> .										
<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.										
<b>Versions</b>	Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a> .										

## 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](#).

The screenshot shows a web-based interface for viewing a Manual Task Instance. The window title is "Manual Task Instance Details: stonebranch-manualtask-01". At the top, there are tabs for "Manual Task Instance", "Virtual Resources", "Exclusive Requests", and "Notes". Below the tabs are buttons for "Update", "Re-run", "Delete", "Refresh", and "Close".

The "General" section contains the following fields:

- Instance Name: stonebranch-manualtask-01
- Reference Id: 1
- Task: stonebranch-manualtask-01
- Invoked By: Manually Launched
- Task Description: (empty)
- Member of Business Services: (dropdown menu)
- Execution User: ops.admin
- Calendar: System Default
- Time Zone Preference: -- System Default --
- Virtual Resource Priority: 10
- Hold Resources on Failure: (checkbox)

The "Status" section contains the following fields:

- Status: Success
- Status Description: (empty)
- Operational Memo: (empty)
- Trigger Time: (empty)
- 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

The "Statistics" section contains the following fields:

- User Estimated End Time: (empty)
- Average Estimated End Time: 2017-05-31 16:09:19 -0400
- Shortest Estimated End Time: (empty)
- Longest Estimated End Time: (empty)

At the bottom of the window, there are buttons for "Update", "Re-run", "Delete", "Refresh", and "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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Trigger: (Trigger Name)</b> Instance was launched by the named trigger.</li> <li>• <b>Workflow: (Workflow Name)</b> Instance was launched by the named workflow.</li> <li>• <b>Manually Launched</b> Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
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	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	<p>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.</p>
<b>Status</b>	<p>This section contains information about the current status of the task instance.</p>
Status	<p>System-supplied; see <a href="#">Task Instance Statuses</a>.</p>
Status Description	<p>System-supplied; additional information, if any, about the status of the task instance.</p>
Operational Memo	<p>User-defined operational memo.</p>
Evaluation Time	<p>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.)</p>
Critical	<p>Indicates that this task is in the Critical Path of a workflow.</p>
Wait Until Time	<p>Amount of time calculated to wait before the task was started, based on <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> times.</p>
Queued Time	<p>System-supplied; Date and time the task was queued for processing.</p>

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.
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Wait Time	If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.



<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <b>Early Finish Type</b> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <b>Early Finish Day Constraint</b> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <b>Early Finish Type</b> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <b>CP Duration Unit</b> 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.</p>

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>

Before Date	If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.
Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.



<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Set Started</b>	Sets the task instance to the <a href="#">Started</a> status.
<b>Set Completed</b>	Sets the task instance to the <a href="#">Success</a> status.
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Retrieve Output</b>	See <a href="#">Retrieving Output</a> .
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Notes</b>	Lists all <a href="#">notes</a> 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](#)
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- [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.

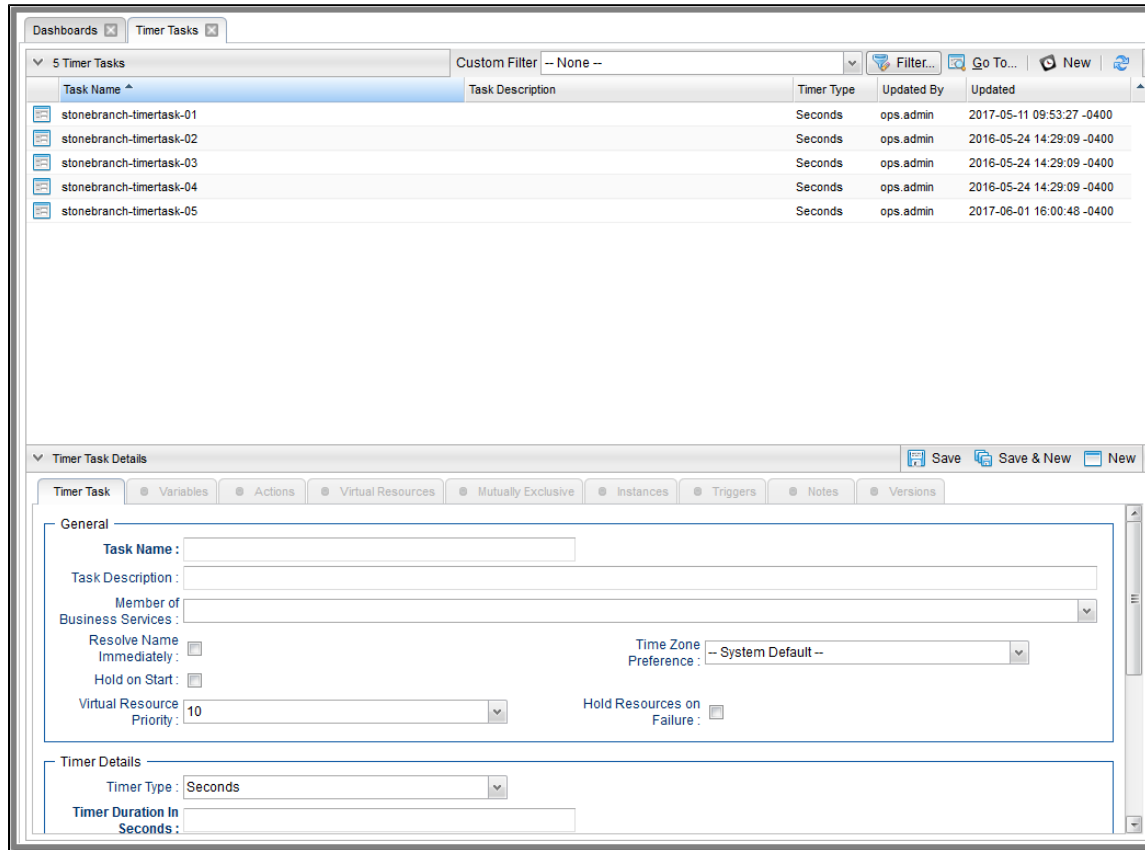
### Built-In Variables

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.



**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.

The screenshot shows the 'Timer Task Details' window for 'stonebranch-timertask-01'. The window has a title bar with standard OS controls and a menu bar with 'Update', 'Launch Task', 'View Parents', 'Copy', 'Delete', 'Refresh', and 'Close'. Below the menu bar are tabs for 'Timer Task', 'Variables', 'Actions', 'Virtual Resources', 'Mutually Exclusive', 'Instances', 'Triggers', 'Notes', and 'Versions'. The main content area is divided into several sections:

- General:** Task Name: stonebranch-timertask-01, Version: 3, Task Description: (empty), Member of: (empty), Business Services: (dropdown), Resolve Name Immediately: , Hold on Start: , Virtual Resource Priority: 10, Time Zone Preference: -- System Default --, 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 dropdowns)
- Critical Path Options:** CP Duration: 1, CP Duration Unit: Minutes
- Statistics:** First Time Ran: 2017-05-31 16:12:30 -0400, Last Time Ran: 2017-05-31 16:12:30 -0400, Last Instance Duration: 1 Minute 0 Seconds, Number of Instances: 1, Lowest Instance Time: 1 Minute 0 Seconds, Average Instance Time: 1 Minute 0 Seconds, Highest Instance Time: 1 Minute 0 Seconds
- Workflow Execution Options:** Execution Restriction: -- None --

At the bottom of the window is a toolbar with buttons for 'Update', 'Launch Task', 'View Parents', 'Copy', 'Delete', 'Refresh', and 'Close'.

## Timer Task Details Field Descriptions

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

Field Name	Description
<b>General</b>	This section contains general information about the task.

Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions tab</a> to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> 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) - 20 (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.

<b>Timer Details</b>	This section contains assorted detailed information about the task.
Timer Type	User-supplied; the type of Timer command you want to execute.  Options: <ul style="list-style-type: none"> <li>• Time Use the <a href="#">Timer Time</a> field (and, optionally, the <a href="#">Timer Day Constraint</a> field) to specify the time of day that you want the Timer task to be completed.</li> <li>• Relative Time Use the <a href="#">Timer Time</a> field (and, optionally, the <a href="#">Timer Day Constraint</a> field) to specify time of day, relative to the Trigger/Launch Time, that you want the Timer task to be completed.</li> <li>• Duration Use the <a href="#">Timer Duration</a> field to specify the number of days, hours, minutes, and/or seconds that the Timer task will run.</li> <li>• Seconds Use the <a href="#">Timer Duration in Seconds</a> field to specify the number of seconds that the Timer task will run.</li> </ul>
Timer Time (HH:MM)	If <a href="#">Timer Type</a> = Time; Time of day (in 24-hour time) that the Timer task should go to a completed status.
Timer Day Constraint	If <a href="#">Timer Type</a> = Time or Relative Time; Specification for whether or not to advance the timer to another day.  Valid values: <ul style="list-style-type: none"> <li>• -- None --                         <ul style="list-style-type: none"> <li>• If <a href="#">Timer Type</a> = Time; Advance to the next day if calculated wait time is before the current time.</li> <li>• If <a href="#">Timer Type</a> = Relative Time; Advance to the next day if calculated wait time is before the Trigger/Launch Time.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p><b>Default is – None --.</b></p>



Timer Duration	If <b>Timer Type</b> = Duration; Number of days, hours, minutes, and/or seconds the Timer task will run.
Timer Duration in Seconds	If <b>Timer Type</b> = Seconds; Number of seconds the Timer task will run.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <b>Started Late</b> field; the field is checked if the instance started after the specified time. The <b>Started Late</b> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <b>Late Start Type</b> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>

Early Finish	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	<p>If <a href="#">Early Finish Type</a> = 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.</p>
Early Finish Day Constraint	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Early Finish Nth Amount	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>


<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>

Restriction Period	<p>If <b>Execution Restriction</b> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <b>Before Date</b> value.</li> <li>• After Restriction is valid if the date is after the <b>After Date</b> value.</li> <li>• Span Restriction is valid if the date is before the <b>Before Date</b> value and after <b>After Date</b> value.</li> <li>• On Restriction is valid if the date is one of the <b>Date List</b> values.</li> </ul>
Before Date	<p>If <b>Restriction Period</b> = Before or Span; Date before which the restriction is valid.</p>
Before Time	<p>If <b>Restriction Period</b> = Before or Span; Time on the selected date before which the restriction is valid.</p>
After Date	<p>If <b>Restriction Period</b> = After or Span; Date after which the restriction is valid.</p>
After Time	<p>If <b>Restriction Period</b> = After or Span; Time on the selected date after which the restriction is valid.</p>
Date List	<p>If <b>Restriction Period</b> = On; Date(s) on which the restriction is valid.</p>
<b>Workflow Execution Options</b>	<p>This section contains Critical Path-related specifications for the task.</p>
Execution Restriction	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <b>Restriction Period</b> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <b>Restriction Period</b> or Execution Restriction is Run and the date is not within the <b>Restriction Period</b>. Execution Restriction can be set to Skip with a <b>Restriction Period</b> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>

Restriction Period	<p>If <b>Execution Restriction</b> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <b>Before Date</b> value.</li> <li>• After Restriction is valid if the date is after the <b>After Date</b> value.</li> <li>• Span Restriction is valid if the date is before the <b>Before Date</b> value and after <b>After Date</b> value.</li> <li>• On Restriction is valid if the date is one of the <b>Date List</b> values.</li> </ul>
Before Date	If <b>Restriction Period</b> = Before or Span; Date before which the restriction is valid.
Before Time	If <b>Restriction Period</b> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <b>Restriction Period</b> = After or Span; Date after which the restriction is valid.
After Time	If <b>Restriction Period</b> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <b>Restriction Period</b> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.
<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.



<p><b>Delete button</b></p>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>										
<p><b>Refresh</b></p>	<p>Refreshes any dynamic data displayed in the Details.</p>										
<p><b>Close</b></p>	<p>For pop-up view only; closes the pop-up view of this task.</p>										
<p><b>Tabs</b></p>	<p>This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.</p>										
<p><b>Variables</b></p>	<p>Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.</p>										
<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>Task instance status</li> <li>Exit codes</li> <li>Late start</li> <li>Late finish</li> <li>Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="273 1003 1959 1339"> <tr> <td data-bbox="273 1003 472 1052"><b>Abort Action</b></td> <td data-bbox="472 1003 1959 1052">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="273 1052 472 1125"><b>Email Notification</b></td> <td data-bbox="472 1052 1959 1125">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="273 1125 472 1198"><b>Set Variable</b></td> <td data-bbox="472 1125 1959 1198">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="273 1198 472 1271"><b>SNMP Notification</b></td> <td data-bbox="472 1198 1959 1271">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="273 1271 472 1339"><b>System Operation</b></td> <td data-bbox="472 1271 1959 1339">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
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<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<p><b>Virtual Resources</b></p>	<p>Lists all <a href="#">Virtual Resources</a> to which this task is assigned.</p>										

<b>Mutually Exclusive</b>	Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.
<b>Instances</b>	Lists all instances of this task.
<b>Triggers</b>	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 <a href="#">Triggers</a> .
<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.

## 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 Field Descriptions

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

Field Name	Description
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.

Reference Id	System-supplied; the Controller increments this number each time the task is run.
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	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
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	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>

Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	<p>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.</p>
<b>Status</b>	<p>This section contains information about the current status of the task instance.</p>
Status	<p>System-supplied; see <a href="#">Task Instance Statuses</a>.</p>
Exit Code	<p>System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).</p>
Status Description	<p>System-supplied; additional information, if any, about the status of the task instance.</p>
Operational Memo	<p>User-defined operational memo.</p>
Evaluation Time	<p>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.)</p>
Critical	<p>Indicates that this task is in the Critical Path of a workflow.</p>
Queued Time	<p>System-supplied; Date and time the task was queued for processing.</p>
Trigger Time	<p>System-supplied; Date and time the task instance was triggered.</p>
Launch Time	<p>System-supplied; Date and time the task instance was launched.</p>
Start Time	<p>System-supplied; Date and time the task instance started.</p>

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.
<b>Timer Details</b>	This section contains assorted detailed information about the task instance.
Timer Type	<p>User-supplied; the type of Timer command you want to execute.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time Use the <a href="#">Timer Time</a> field (and, optionally, the <a href="#">Timer Day Constraint</a> field) to specify the time of day that you want the Timer task to be completed.</li> <li>• Relative Time Use the <a href="#">Timer Time</a> field (and, optionally, the <a href="#">Timer Day Constraint</a> field) to specify time of day, relative to the Trigger/Launch Time, that you want the Timer task to be completed.</li> <li>• Duration Use the <a href="#">Timer Duration</a> field to specify the number of days, hours, minutes, and/or seconds that the Timer task will run.</li> <li>• Seconds Use the <a href="#">Timer Duration in Seconds</a> field to specify the number of seconds that the Timer task will run.</li> </ul>
Timer Time (HH:MM)	If <a href="#">Timer Type</a> = Time; Time of day (in 24-hour time) that the Timer task should go to a completed status.

<p>Timer Day Constraint</p>	<p>If <b>Timer Type</b> = Time or Relative Time; Specification for whether or not to advance the timer to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Timer Type</b> = Time; Advance to the next day if calculated wait time is before the current time.</li> <li>• If <b>Timer Type</b> = Relative Time; Advance to the next day if calculated wait time is before the Trigger/Launch Time.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p><b>Default is – None --.</b></p>
<p>Timer Duration</p>	<p>If <b>Timer Type</b> = Duration; Number of days, hours, minutes, and/or seconds the Timer task will run.</p>
<p>Timer Duration in Seconds</p>	<p>If <b>Timer Type</b> = Seconds; Number of seconds the Timer task will run.</p>
<p><b>Time Options</b></p>	<p>This section contains time-related specifications for the task instance.</p>
<p>Late Start</p>	<p>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 <a href="#">Late Start Type</a>). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <b>Started Late</b> field; the field is checked if the instance started after the specified time. The <b>Started Late</b> field displays in the task instance Details only if the user specified a Late Start in the task Details.</p>
<p>Started Late</p>	<p>System-supplied; this field is flagged if the task started later than the time specified in the <a href="#">Late Start</a> fields.</p>

<p>Late Start Type</p>	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
<p>Late Start Time</p>	<p>If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>



<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>
<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>

<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Finished Early</p>	<p>System-supplied; this field is flagged if the task finished earlier than the time specified in the <a href="#">Early Finish</a> fields.</p>

<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>
<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>

<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.  Options: <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> Default is Minutes.
<b>Workflow Execution Options</b>	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: <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a> . Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.

Restriction Period	<p>If <b>Execution Restriction</b> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <b>Before Date</b> value.</li> <li>• After Restriction is valid if the date is after the <b>After Date</b> value.</li> <li>• Span Restriction is valid if the date is before the <b>Before Date</b> value and after <b>After Date</b> value.</li> <li>• On Restriction is valid if the date is one of the <b>Date List</b> values.</li> </ul>
Before Date	If <b>Restriction Period</b> = Before or Span; Date before which the restriction is valid.
After Date	If <b>Restriction Period</b> = After or Span; Date after which the restriction is valid.
Date List	If <b>Restriction Period</b> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <b>User Estimated Duration</b> 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.
Shortest Estimated End Time	System-supplied; shortest 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.
Longest Estimated End Time	System-supplied; longest 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 <b>critical path duration</b> .
<b>Metadata</b>	This section contains <b>Metadata</b> information about this record.
UUID	Universally Unique Identifier of this record.

<b>Updated By</b>	Name of the user that last updated this record.
<b>Updated</b>	Date and time that this record was last updated.
<b>Created By</b>	Name of the user that created this record.
<b>Created</b>	Date and time that this record was created.
<b>Status History</b>	History of all statuses that the task instance has gone through.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.

<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.
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## 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

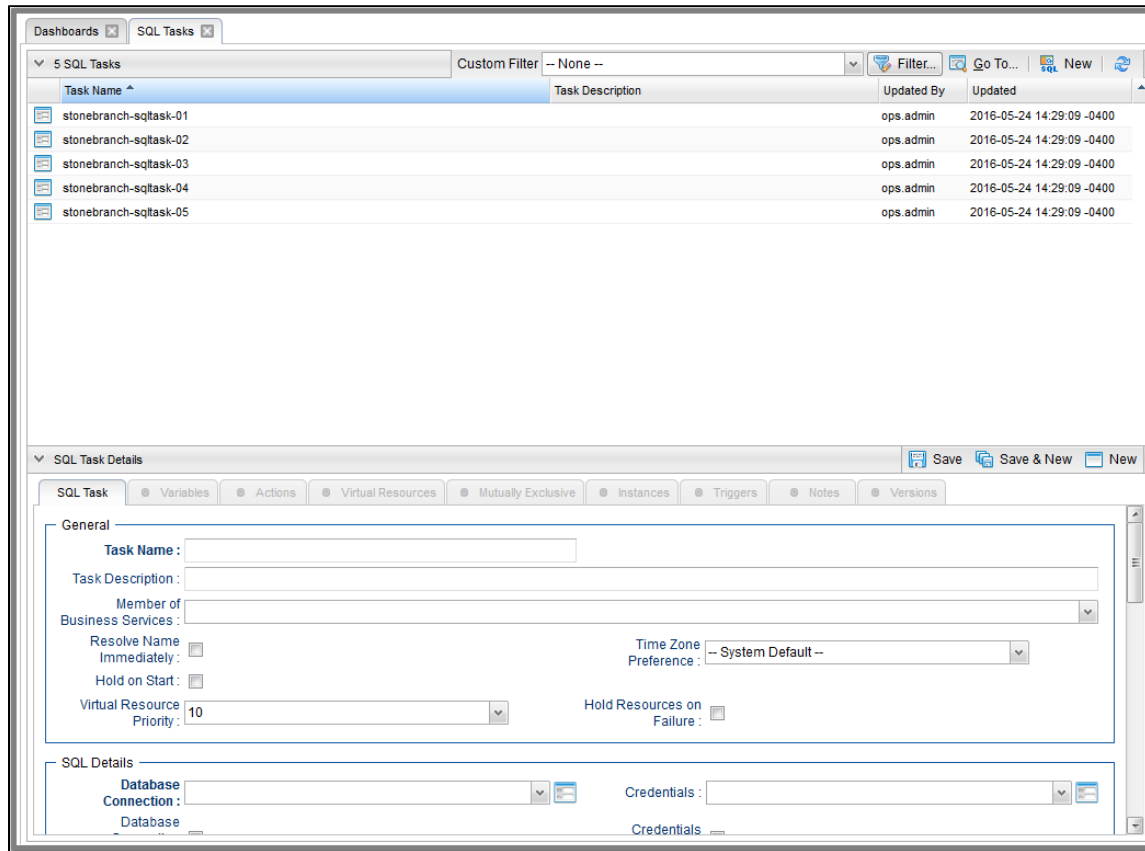
The following [built-in variables](#) can be used in a SQL task to pass data where appropriate:

- Task Instance variables
- SQL Task Instance variables

### Creating a SQL Task



**Step 1** From the Automation Center navigation pane, select **Tasks > SQL Tasks**. The SQL Tasks list displays a list of all currently defined SQL tasks. Below the list, SQL Task Details for a new SQL task displays.



**Step 2** Enter/select Details for a new SQL 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](#)).

## 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:

SQL Command:

Auto Cleanup:

Result Processing: Skip Result Processing

**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:

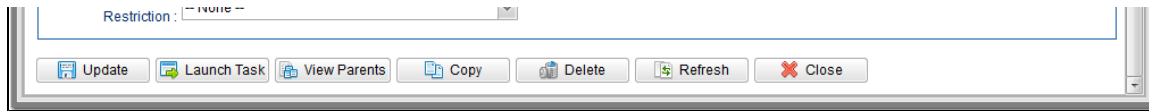
User Estimated Duration: Day Hour Min Sec

**Critical Path Options**

CP Duration: CP Duration Unit: Minutes

**Workflow Execution Options**



Execution




## SQL Task Details Field Descriptions

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

Field Name	Description
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions</a> tab to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> it.

Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
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.
<b>SQL Details</b>	This section contains assorted detailed information about the task.
Database Connection	Name of the Universal Controller <a href="#">Database Connection</a> 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	<p>Indication of whether the <a href="#">Database Connection</a> field is a reference field for selecting a specific <a href="#">Database Connection</a> (unchecked) or a text field for specifying the <a href="#">Database Connection</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Database Connection reference to using a Database Connection variable, you must change the <b>Database Connection Variable</b> field to <b>Yes</b> and specify the Database Connection variable in the <b>Database Connection Unresolved</b> field. Conversely, to change from using a Database Connection variable to using a Database Connection reference, you must change the <b>Database Connection Variable</b> field to <b>No</b> and specify the Database Connection reference in the <b>Database Connection</b> field.</p> </div>
Credentials	<a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.
Credentials Variable	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>

Maximum Rows	<p>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 <a href="#">database connection</a>.</p> <p>(A default limit can be specified by the <a href="#">SQL/Stored Procedure Maximum Rows</a> Universal Controller system property.)</p> <p>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.</p>
Auto Cleanup	<p>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).</p>
SQL Command	<p>SQL command being executed against the database. <a href="#">Variables</a> supported.</p>
Result Processing	<p>Specifies how the Controller should determine whether the SQL command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Skip Result Processing</li> <li>• Success Exitcode Range - The SQL command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range - The SQL command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• 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 <a href="#">Column Name</a>, <a href="#">Operator</a>, and <a href="#">Value</a> fields).</li> <li>• Failure Result Set Contains - The SQL command is considered failed depending on the value in the first row of a specific database column (see <a href="#">Column Name</a>, <a href="#">Operator</a>, and <a href="#">Value</a> fields).</li> </ul>
Exit Codes	<p>Required if <a href="#">Result Processing</a> = 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.</p>
Column Name	<p>Required if <a href="#">Result Processing</a> = Success Result Set Contains or Failure Result Set Contains. Specifies the name of a database column that is being checked for a specific value.</p>
Operator	<p>Operator being used for the comparison. Options: =, !=, &gt;, &gt;=, &lt;, &lt;=, regex.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      For operators &gt;, &gt;=, &lt;, and &lt;=, if the values being compared are whole numbers between -9223372036854775808 and 9223372036854775807, they will be compared as numbers; otherwise, they will be compared as text lexicographically.</p> </div>
Value	<p>Value being compared, using the operator specified.</p>

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

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>



Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>- - System Default - - Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>Time - Flag the task if it starts after the specified time.</li> <li>Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>


<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>

Early Finish	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	<p>If <a href="#">Early Finish Type</a> = 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.</p>
Early Finish Day Constraint	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Early Finish Nth Amount	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

Early Finish Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p><b>Execution Restriction</b></p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p><b>Restriction Period</b></p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p><b>Before Date</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p><b>Before Time</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p><b>After Date</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p><b>After Time</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p><b>Date List</b></p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.

<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b>            You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.



<b>Actions</b>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="275 451 1959 786"> <tr> <td data-bbox="275 451 474 500"><b>Abort Action</b></td> <td data-bbox="474 451 1959 500">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="275 500 474 573"><b>Email Notification</b></td> <td data-bbox="474 500 1959 573">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="275 573 474 646"><b>Set Variable</b></td> <td data-bbox="474 573 1959 646">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="275 646 474 719"><b>SNMP Notification</b></td> <td data-bbox="474 646 1959 719">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="275 719 474 786"><b>System Operation</b></td> <td data-bbox="474 719 1959 786">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .										
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<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.										
<b>Mutually Exclusive</b>	Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.										
<b>Instances</b>	Lists all instances of the task.										
<b>Triggers</b>	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 <a href="#">Triggers</a> .										
<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.										
<b>Versions</b>	Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a> .										

## 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

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: Skip Result Processing

**Retry Options**

Retry Exit Codes:

Maximum Retries: 0 Retry Indefinitely:

Retry Interval (Seconds): 60 Suppress Intermediate Failures:



## 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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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: <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>

Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
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	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
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.
<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.
<b>SQL Details</b>	This section contains assorted detailed information about the task instance.

Database Connection	Name of the Universal Controller <a href="#">Database Connection</a> 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	<p>Indication of whether the <a href="#">Database Connection field</a> is a reference field for selecting a specific <a href="#">Database Connection</a> (unchecked) or a text field for specifying the <a href="#">Database Connection</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Database Connection reference to using a Database Connection variable, you must change the <b>Database Connection Variable</b> field to <b>Yes</b> and specify the Database Connection variable in the <b>Database Connection Unresolved</b> field. Conversely, to change from using a Database Connection variable to using a Database Connection reference, you must change the <b>Database Connection Variable</b> field to <b>No</b> and specify the Database Connection reference in the <b>Database Connection</b> field.</p> </div>
Credentials	<a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.
Credentials Variable	<p>Indication of whether the <a href="#">Credentials field</a> is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
Maximum Rows	<p>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 <a href="#">database connection</a>.</p> <p>(A default limit can be specified by the <a href="#">SQL/Stored Procedure Maximum Rows</a> Universal Controller system property.)</p> <p>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.</p>
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. <a href="#">Variables</a> supported.

<p>Result Processing</p>	<p>Specifies how the Controller should determine whether the SQL command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Skip Result Processing</li> <li>• Success Exitcode Range - The SQL command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range - The SQL command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• 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 <a href="#">Column Name</a>, <a href="#">Operator</a>, and <a href="#">Value</a> fields).</li> <li>• Failure Result Set Contains - The SQL command is considered failed depending on the value in the first row of a specific database column (see <a href="#">Column Name</a>, <a href="#">Operator</a>, and <a href="#">Value</a> fields).</li> </ul>
<p>Exit Codes</p>	<p>Required if <a href="#">Result Processing</a> = 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.</p>
<p>Column Name</p>	<p>Required if <a href="#">Result Processing</a> = Success Result Set Contains or Failure Result Set Contains. Specifies the name of a database column that is being checked for a specific value.</p>
<p>Operator</p>	<p>Operator being used for the comparison. Options: =, !=, &gt;, &gt;=, &lt;, &lt;=, regex.</p> <div data-bbox="317 760 1919 889" style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      For operators &gt;, &gt;=, &lt;, and &lt;=, if the values being compared are whole numbers between -9223372036854775808 and 9223372036854775807, they will be compared as numbers; otherwise, they will be compared as text lexicographically.</p> </div>
<p>Value</p>	<p>Value being compared, using the operator specified.</p>
<p><b>Retry Options</b></p>	<p>This section contains specifications for retrying the task.</p>
<p>Maximum Retries</p>	<p>User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.</p>
<p>Retry Indefinitely</p>	<p>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 <a href="#">Maximum Retries</a> field.</p>
<p>Retry Interval (Seconds)</p>	<p>User-defined; number of seconds between each retry.</p>
<p>Current Retry Count</p>	<p>System-supplied; current number of times that the Controller has retried the task after it first went to failure status.</p>



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

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>



Before Date	If <b>Restriction Period</b> = Before or Span; Date before which the restriction is valid.
Before Time	If <b>Restriction Period</b> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <b>Restriction Period</b> = After or Span; Date after which the restriction is valid.
After Time	If <b>Restriction Period</b> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <b>Restriction Period</b> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <b>User Estimated Duration</b> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <b>critical path duration</b> .
<b>Metadata</b>	This section contains <b>Metadata</b> 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.

<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>SQL Results</b>	Stores results of executed SQL statements, if any.
<b>SQL Warnings</b>	Warnings returned by executed SQL statements, if any.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Notes</b>	Lists all <a href="#">notes</a> 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.

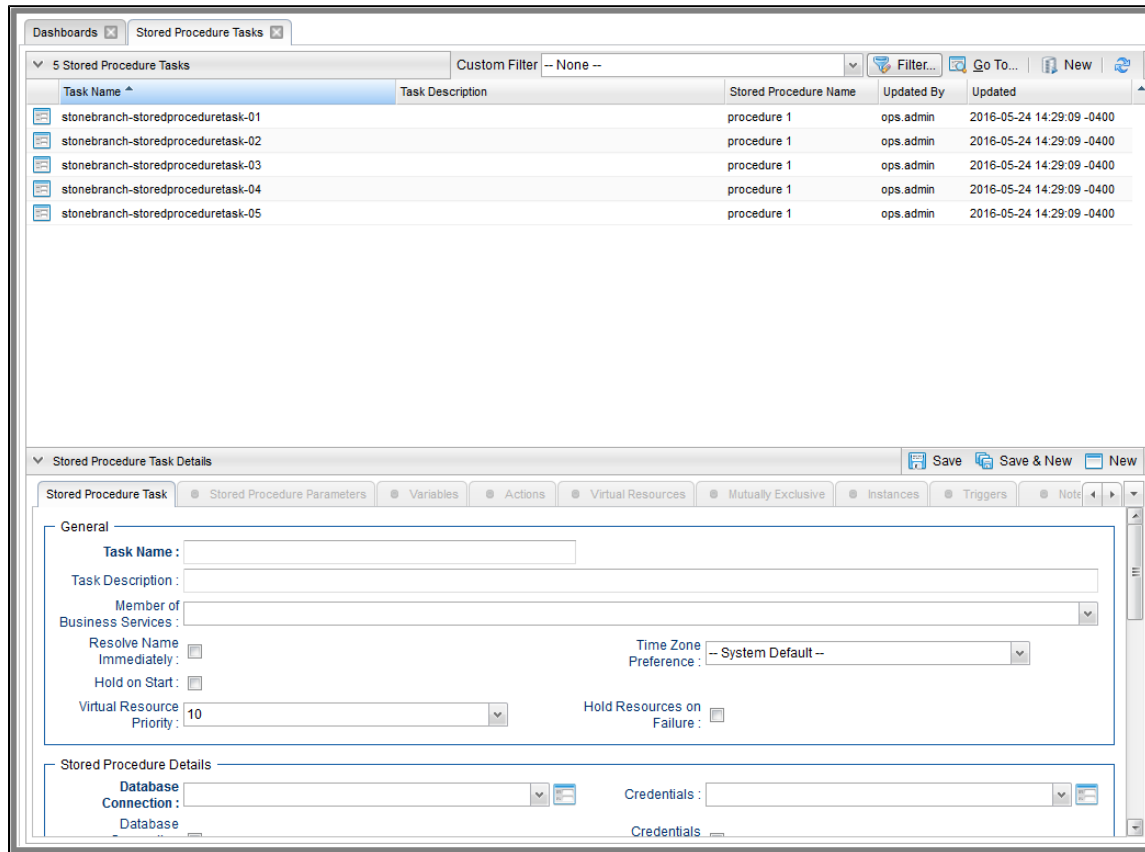
### Built-In Variables

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.



**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.

Stored Procedure Task Details: stonebranch-storedproceduretask-01

Update Launch Task View Parents Copy Delete Refresh Close

Stored Procedure Task Stored Procedure Parameters Variables Actions Virtual Resources Mutually Exclusive Instances Triggers

**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:

Stored Procedure Name: procedure 1 Auto Cleanup:

Result Processing: Skip Result Processing

**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 --



Update Launch Task View Parents Copy Delete Refresh Close


## 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
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions tab</a> to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> 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) - 20 (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.
<b>Stored Procedure Details</b>	This section contains assorted detailed information about the task.
Database Connection	Name of the Universal Controller <a href="#">Database Connection</a> 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	<p>Indication of whether the <a href="#">Database Connection</a> field is a reference field for selecting a specific <a href="#">Database Connection</a> (unchecked) or a text field for specifying the <a href="#">Database Connection</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 570 1919 748" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Database Connection reference to using a Database Connection variable, you must change the <b>Database Connection Variable</b> field to <b>Yes</b> and specify the Database Connection variable in the <b>Database Connection Unresolved</b> field. Conversely, to change from using a Database Connection variable to using a Database Connection reference, you must change the <b>Database Connection Variable</b> field to <b>No</b> and specify the Database Connection reference in the <b>Database Connection</b> field.</p> </div>
Credentials	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p>
Credentials Variable	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="317 1008 1919 1162" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
Maximum Rows	<p>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 <a href="#">database connection</a>.</p> <p>(A default limit can be specified by the <a href="#">SQL/Stored Procedure Maximum Rows</a> Universal Controller system property.)</p> <p>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.</p>

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. <a href="#">Variables</a> supported.
Result Processing	<p>Specifies how the Controller should determine whether the Stored Procedure failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Skip Result Processing.</li> <li>• Success Exitcode Range - The Stored Procedure is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range - The Stored Procedure is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Result Set Contains - The Stored Procedure is considered completed successfully depending on the value in a specific database column (see <a href="#">Column Name</a>, <a href="#">Operator</a>, and <a href="#">Value</a> fields).</li> <li>• Failure Result Set Contains - The Stored Procedure is considered failed depending on the value in a specific database column (see <a href="#">Column Name</a>, <a href="#">Operator</a>, and <a href="#">Value</a> fields).</li> <li>• Success Output Parameter - The Stored Procedure is considered completed successfully if its output parameter satisfies the condition specified in the associated <a href="#">Parameter Position</a>, <a href="#">Operator</a>, and <a href="#">Value</a> fields.</li> <li>• Failure Output Parameter - The Stored Procedure is considered failed if its output parameter satisfies the condition specified in the associated <a href="#">Parameter Position</a>, <a href="#">Operator</a>, and <a href="#">Value</a> fields.</li> </ul>
Exit Codes	Required if <a href="#">Result Processing</a> = 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 <a href="#">Result Processing</a> = Success Output Parameter or Failure Output Parameter; position of this parameter within a list of parameters.
Operator	<p>Operator being used for the comparison. Options: =, !=, &gt;, &gt;=, &lt;, &lt;=, regex.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> For operators &gt;, &gt;=, &lt;, and &lt;=, if the values being compared are whole numbers between -9223372036854775808 and 9223372036854775807, they will be compared as numbers; otherwise, they will be compared as text lexicographically.</p> </div>
Value	Value being compared, using the operator specified.
Column Name	Required if <a href="#">Result Processing</a> = 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	<p>Operator being used for the comparison. Options: =, !=, &gt;, &gt;=, &lt;, &lt;=, regex.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      For operators &gt;, &gt;=, &lt;, and &lt;=, if the values being compared are whole numbers between -9223372036854775808 and 9223372036854775807, they will be compared as numbers; otherwise, they will be compared as text lexicographically.</p> </div>
Value	Value being compared, using the operator specified.
<b>Retry Options</b>	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 <a href="#">Maximum Retries</a> field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	<p>User-defined; If the task instance is in the <a href="#">Failed status</a>, indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made:</p> <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.

<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>

Wait Duration In Seconds	If <a href="#">Wait To Start</a> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - - System Default - - Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>

<p>Late Start Time</p>	<p>If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>

Late Finish	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>
Late Finish Type	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Late Finish Time	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
Late Finish Day Constraint	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Late Finish Nth Amount	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>


<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>
<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>



Early Finish Nth Amount	If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.
Early Finish Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.  Options: <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> Default is Minutes.
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p><b>Execution Restriction</b></p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p><b>Restriction Period</b></p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p><b>Before Date</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p><b>Before Time</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p><b>After Date</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p><b>After Time</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p><b>Date List</b></p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.

<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b>            You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task instance.
<b>Stored Procedure Parameters</b>	See <a href="#">Adding Stored Procedure Parameters</a> , below.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.

<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="275 451 1959 787"> <tr> <td data-bbox="275 451 474 500"><b>Abort Action</b></td> <td data-bbox="474 451 1959 500">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="275 500 474 573"><b>Email Notification</b></td> <td data-bbox="474 500 1959 573">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="275 573 474 646"><b>Set Variable</b></td> <td data-bbox="474 573 1959 646">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="275 646 474 719"><b>SNMP Notification</b></td> <td data-bbox="474 646 1959 719">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="275 719 474 787"><b>System Operation</b></td> <td data-bbox="474 719 1959 787">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .										
<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .										
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<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<p><b>Virtual Resources</b></p>	<p>Lists all <a href="#">Virtual Resources</a> to which this task is assigned.</p>										
<p><b>Mutually Exclusive</b></p>	<p>Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.</p>										
<p><b>Instances</b></p>	<p>Lists all instances of the task.</p>										
<p><b>Triggers</b></p>	<p>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: &lt;current task name&gt;#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see <a href="#">Triggers</a>.</p>										
<p><b>Notes</b></p>	<p>Lists all <a href="#">notes</a> associated with this record.</p>										
<p><b>Versions</b></p>	<p>Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a>.</p>										

## 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

**General**

Instance Name:  Reference Id:

Task:  Invoked By:

Task Description:

Member of Business Services:  Execution User:

Calendar:  Time Zone Preference:

Virtual Resource Priority:  Hold Resources on Failure:

**Status**

Status:

Status Description:

Operational Memo:

Wait Until Time:

Queued Time:

Trigger Time:  Start Time:

Launch Time:  End Time:

Duration:

SQL State:  Rows Retrieved:

SQL Error Message:

**Stored Procedure Details**

Database Connection:  Credentials:

Database Connection Variable:  Credentials Variable:

Maximum Rows:  Auto Cleanup:

Stored Procedure Name:

Result Processing:

**Retry Options**

Retry Exit Codes:

Maximum Retries:  Retry Indefinitely:

Retry Interval (Seconds):  Suppress Intermediate Failures:

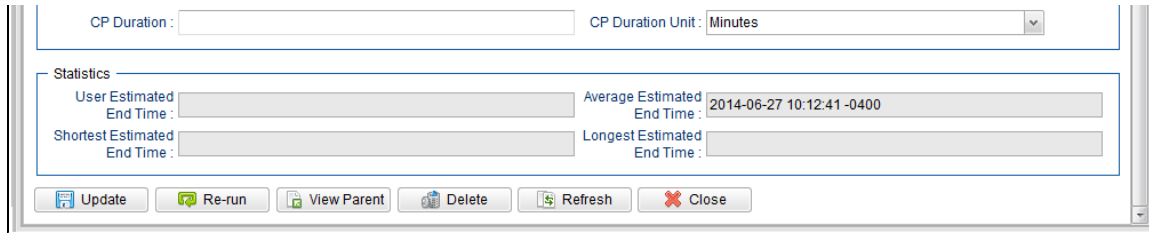
Current Retry Count:

**Wait/Delay Options**

Wait To Start:  Wait Duration In Seconds:

Delay On Start:  Delay Duration In Seconds:

**Critical Path Options**



## 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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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: <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.



Calendar	Calendar associated with the task instance.
Time Zone Preference	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
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.
<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.
<b>Stored Procedure Details</b>	This section contains assorted detailed information about the task instance.
Database Connection	Name of the Universal Controller <a href="#">Database Connection</a> that defines the database. Select a database from the drop-down list or click the icon to create a new database connection.

<p>Database Connection Variable</p>	<p>Indication of whether the <a href="#">Database Connection field</a> is a reference field for selecting a specific <a href="#">Database Connection</a> (unchecked) or a text field for specifying the <a href="#">Database Connection</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Database Connection reference to using a Database Connection variable, you must change the <b>Database Connection Variable</b> field to <b>Yes</b> and specify the Database Connection variable in the <b>Database Connection Unresolved</b> field. Conversely, to change from using a Database Connection variable to using a Database Connection reference, you must change the <b>Database Connection Variable</b> field to <b>No</b> and specify the Database Connection reference in the <b>Database Connection</b> field.</p> </div>
<p>Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p>
<p>Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials field</a> is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>Maximum Rows</p>	<p>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 <a href="#">database connection</a>.</p> <p>(A default limit can be specified by the <a href="#">SQL/Stored Procedure Maximum Rows</a> Universal Controller system property.)</p> <p>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.</p>
<p>Auto Cleanup</p>	<p>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).</p>
<p>Stored Procedure Name</p>	<p>Name of the file containing the stored procedure being executed against the database. <a href="#">Variables</a> supported.</p>

<p>Result Processing</p>	<p>Specifies how the Controller should determine whether the Stored Procedure failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Skip Result Processing.</li> <li>• Success Exitcode Range - The Stored Procedure is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Failure Exitcode Range - The Stored Procedure is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• Success Result Set Contains - The Stored Procedure is considered completed successfully depending on the value in a specific database column (see <a href="#">Column Name</a>, <a href="#">Operator</a>, and <a href="#">Value</a> fields).</li> <li>• Failure Result Set Contains - The Stored Procedure is considered failed depending on the value in a specific database column (see <a href="#">Column Name</a>, <a href="#">Operator</a>, and <a href="#">Value</a> fields).</li> <li>• Success Output Parameter - The Stored Procedure is considered completed successfully if its output parameter satisfies the condition specified in the associated <a href="#">Parameter Position</a>, <a href="#">Operator</a>, and <a href="#">Value</a> fields.</li> <li>• Failure Output Parameter - The Stored Procedure is considered failed if its output parameter satisfies the condition specified in the associated <a href="#">Parameter Position</a>, <a href="#">Operator</a>, and <a href="#">Value</a> fields.</li> </ul>
<p>Parameter Position</p>	<p>If <a href="#">Result Processing</a> = Success Output Parameter or Failure Output Parameter; position of this parameter within a list of parameters.</p>
<p>Operator</p>	<p>Operator being used for the comparison. Options: =, !=, &gt;, &gt;=, &lt;, &lt;=, regex.</p> <div data-bbox="317 737 1919 870" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b> For operators &gt;, &gt;=, &lt;, and &lt;=, if the values being compared are whole numbers between -9223372036854775808 and 9223372036854775807, they will be compared as numbers; otherwise, they will be compared as text lexicographically.</p> </div>
<p>Value</p>	<p>Value being compared, using the operator specified.</p>
<p>Exit Codes</p>	<p>Required if <a href="#">Result Processing</a> = 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.</p>
<p>Column Name</p>	<p>Required if <a href="#">Result Processing</a> = Success Result Set Contains or Failure Result Set Contains. Specifies the name of a database column that is being checked for a specific value.</p>
<p>Operator</p>	<p>Operator being used for the comparison. Options: =, !=, &gt;, &gt;=, &lt;, &lt;=, regex.</p> <div data-bbox="317 1289 1919 1422" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b> For operators &gt;, &gt;=, &lt;, and &lt;=, if the values being compared are whole numbers between -9223372036854775808 and 9223372036854775807, they will be compared as numbers; otherwise, they will be compared as text lexicographically.</p> </div>

Value	Value being compared, using the operator specified.
<b>Retry Options</b>	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 <a href="#">Maximum Retries</a> 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	<p>User-defined; If the task instance is in the <a href="#">Failed status</a>, indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made:</p> <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
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.
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.

<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>

Wait Duration In Seconds	If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <b>Delay On Start</b> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <b>Delay On Start</b> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <b>Started Late</b> field; the field is checked if the instance started after the specified time. The <b>Started Late</b> 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 <a href="#">Late Start</a> fields.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <b>Late Start Type</b> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>



<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>

Before Date	If <b>Restriction Period</b> = Before or Span; Date before which the restriction is valid.
Before Time	If <b>Restriction Period</b> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <b>Restriction Period</b> = After or Span; Date after which the restriction is valid.
After Time	If <b>Restriction Period</b> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <b>Restriction Period</b> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <b>User Estimated Duration</b> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <b>critical path duration</b> .
<b>Metadata</b>	This section contains <b>Metadata</b> 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.

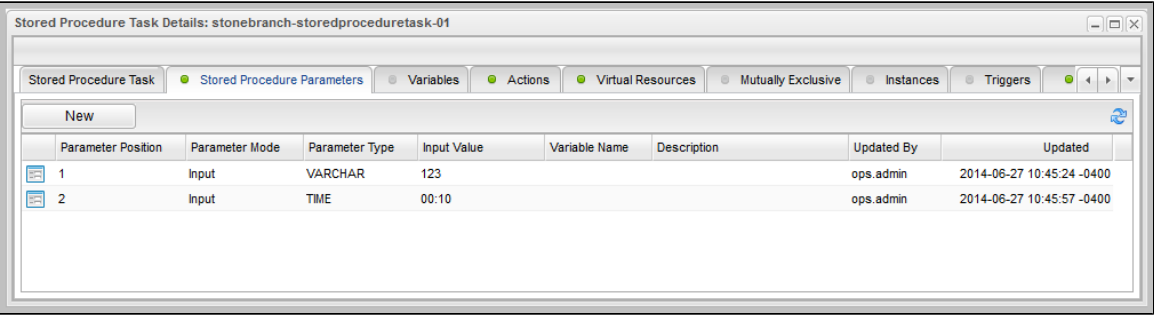
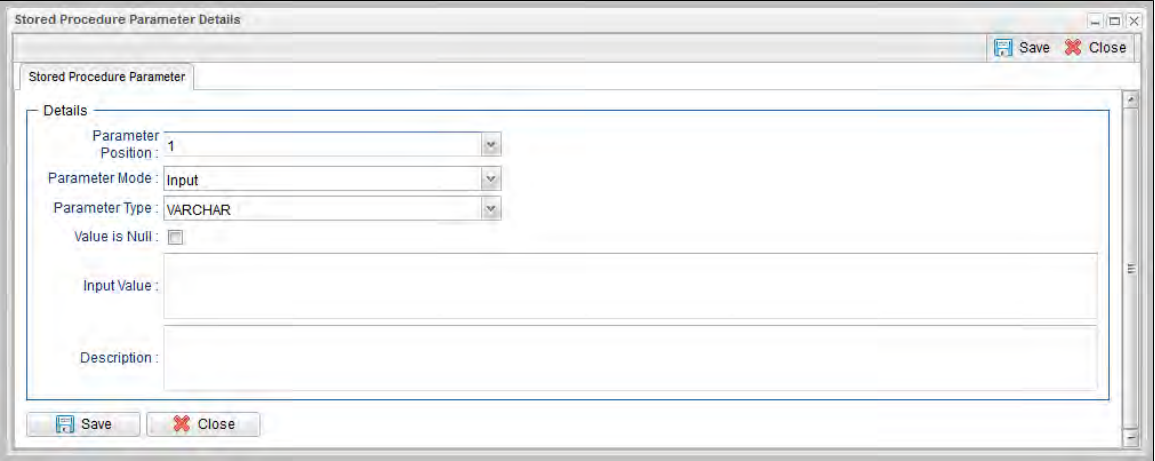
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Stored Procedure Parameters</b>	See <a href="#">Adding Stored Procedure Parameters</a> , below.
<b>SQL Results</b>	Stores results of executed SQL statements, if any.
<b>SQL Warnings</b>	Warnings returned by executed SQL statements, if any.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.

<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.
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## Adding Stored Procedure Parameters

You can enter one or more parameters for each stored procedure, as described below.

### Adding a Parameter

<b>Step 1</b>	Open the Stored Procedure task to which you want to add the parameter.																								
<b>Step 2</b>	<p>Click the <b>Stored Procedure Parameters</b> tab. The Stored Procedure Parameters list displays a list of all currently defined Stored Procedure parameters.</p>  <table border="1" data-bbox="247 704 1352 782"> <thead> <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> </thead> <tbody> <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> </tbody> </table>	Parameter Position	Parameter Mode	Parameter Type	Input Value	Variable Name	Description	Updated By	Updated	1	Input	VARCHAR	123			ops.admin	2014-06-27 10:45:24 -0400	2	Input	TIME	00:10			ops.admin	2014-06-27 10:45:57 -0400
Parameter Position	Parameter Mode	Parameter Type	Input Value	Variable Name	Description	Updated By	Updated																		
1	Input	VARCHAR	123			ops.admin	2014-06-27 10:45:24 -0400																		
2	Input	TIME	00:10			ops.admin	2014-06-27 10:45:57 -0400																		
<b>Step 3</b>	<p>Click the <b>New</b> button to display Stored Procedures Parameter Details for a new parameter.</p> 																								
<b>Step 4</b>	Use the field descriptions, below, to define the parameter.																								

**Step 5** Click the **Save** button.

## 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: <ul style="list-style-type: none"> <li>• Input</li> <li>• Output</li> <li>• Input/Output</li> </ul>
Parameter Type	Type of parameter. Options: <ul style="list-style-type: none"> <li>• NUMERIC</li> <li>• DECIMAL</li> <li>• INTEGER</li> <li>• SMALLINT</li> <li>• FLOAT</li> <li>• REAL</li> <li>• DOUBLE</li> <li>• VARCHAR</li> <li>• BOOLEAN</li> <li>• DATE</li> <li>• TIME</li> <li>• TIMESTAMP</li> <li>• BIGINT</li> <li>• VARBINARY</li> </ul>
Value is Null	If <b>Parameter Mode</b> = 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 <b>Value is Null</b> .
Input Value	If <b>Parameter Mode</b> = Input or Input/Output; Input value of the parameter, if any.
Description	Description of this parameter.



Variable Scope	If <a href="#">Parameter Mode</a> = Output or Input/Output; applies to parameters associated with a task in a workflow. Scope of the variable to assign the Output value.  Options: <ul style="list-style-type: none"> <li>• Self</li> <li>• Parent</li> <li>• Top Level Parent</li> <li>• Global</li> </ul>
Variable Name	If <a href="#">Parameter Mode</a> = 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.

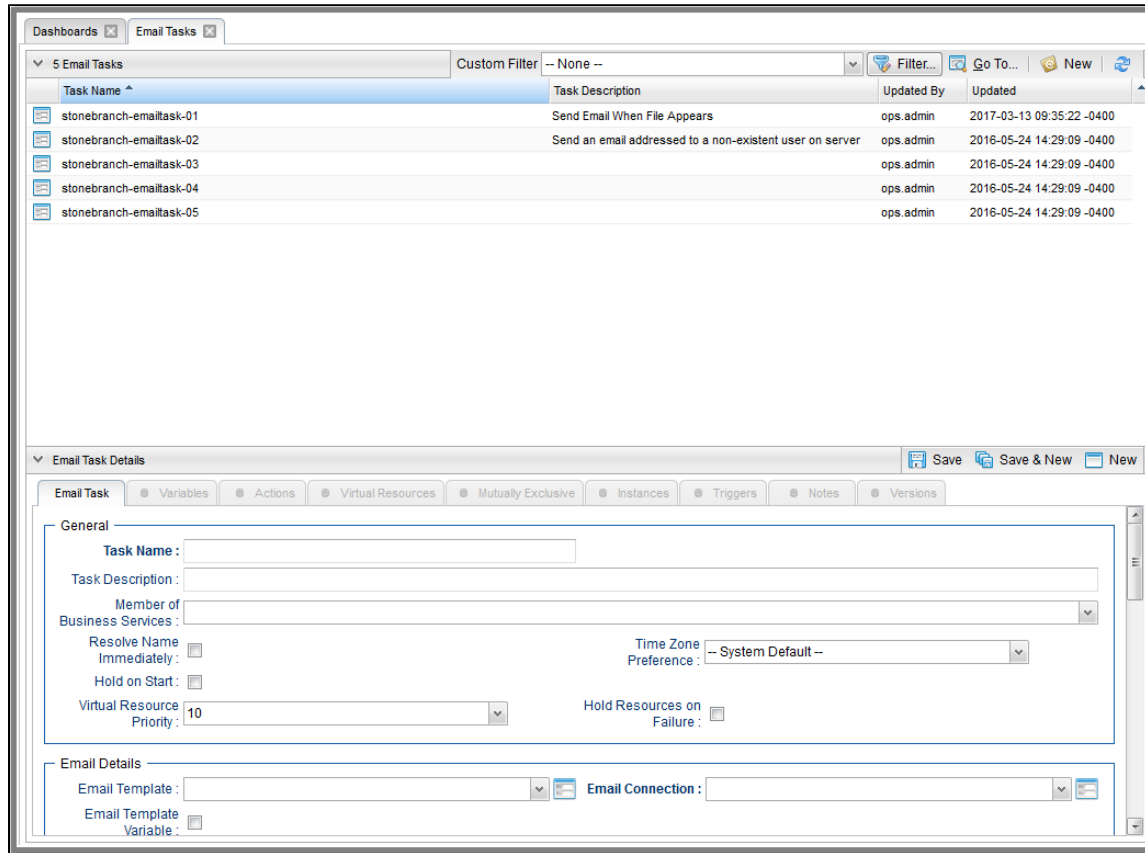
### Built-In Variables

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.



**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-emailltask-01

Email Task

**General**

Task Name:  Version:

Task Description:

Member of Business Services:

Resolve Name Immediately:  Time Zone Preference:

Hold on Start:

Virtual Resource Priority:  Hold Resources on Failure:

**Email Details**

Email Template:  Email Connection:

Email Template Variable:

Reply-To:

To:

Cc:

Bcc:

Subject:

Body:

Report:  Report Variable:

**Wait/Delay Options**

Wait To Start:

Delay On Start:

Workflow Only:

**Time Options**

Late Start:

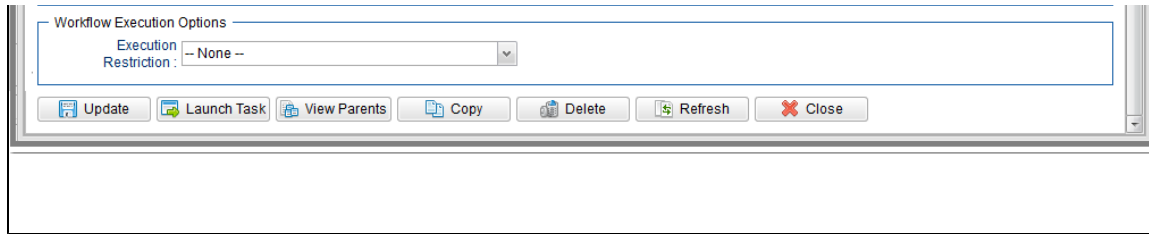
Late Finish:

Early Finish:

User Estimated Duration:

**Critical Path Options**


CP Duration:  CP Duration Unit:




## Email Task Details Field Descriptions

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

Field Name	Description
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions</a> tab to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>

<p>Hold on Start</p>	<p>If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b>. The task runs when the user <a href="#">releases</a> it.</p>
<p>Hold Reason</p>	<p>Information about why the task will be put on hold when it starts.</p>
<p>Virtual Resource Priority</p>	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
<p>Hold Resources on Failure</p>	<p>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.</p>
<p><b>Email Details</b></p>	<p>This section contains assorted detailed information about the task.</p>
<p>Email Template</p>	<p>Name of an <a href="#">Email template</a> 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.</p> <p>Every <a href="#">Email template</a> specifies an Email connection. If you do not specify an Email template in this field, you must specify an Email connection in the <a href="#">Email Connection</a> field.</p> <p>If you specify both an Email template (in this field) and an <a href="#">Email Connection</a>, the Email server specified in the <a href="#">Email Connection</a> field overrides the Email server specified in this field.</p> <p>(Any information specified in an Email task overrides what is specified in an Email template.)</p>
<p>Email Template Variable</p>	<p>Indication of whether the <a href="#">Email Template</a> field is a reference field for selecting a specific <a href="#">Email Template</a> (unchecked) or a text field for specifying the <a href="#">Email Template</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="310 1117 1921 1299" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Email Template reference to using a Email Template variable, you must change the <b>Email Template Variable</b> field to <b>Yes</b> and specify the Email Template variable in the <b>Email Template Unresolved</b> field. Conversely, to change from using an Email Template variable to using an Email Template reference, you must change the <b>Email Template Variable</b> field to <b>No</b> and specify the Email Template reference in the <b>Email Template</b> field.</p> </div>

Email Connection	<p>Required if an Email Template is not specified in the <a href="#">Email Template</a> field; Name of an outgoing <a href="#">Email Connection</a> (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).</p> <p>If you specify both an <a href="#">Email Template</a> and an Email Connection (in this field), the Email Connection specified in this field overrides the Email Connection specified in the <a href="#">Email Template</a> field.</p>
Reply-To	<p>Email address of the sender. Use commas to separate multiple recipients. <a href="#">Variables and functions</a> supported.</p>
To	<p>Email address of the recipient. Use commas to separate multiple recipients. <a href="#">Variables and functions</a> supported.</p>
Cc	<p>Email address of the party being sent a copy of the email, if any. Use commas to separate multiple recipients. <a href="#">Variables and functions</a> supported.</p>
Bcc	<p>Email address of the party being sent a blind (hidden) copy of the email, if any. Use commas to separate multiple recipients. <a href="#">Variables and functions</a> supported.</p>
Subject	<p>Subject line of the email. <a href="#">Variables and functions</a> supported.</p>
Body	<p>Text of the email message. <a href="#">Variables and functions</a> supported. If both the email template and the email task contain text in the body, the text is appended.</p>
Report	<p><a href="#">Report</a> to attach to this email.</p>
Report Variable	<p>Indication of whether the <a href="#">Report</a> field is a reference field for selecting a specific <a href="#">Report</a> (unchecked) or a text field for specifying the <a href="#">Report</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="310 1084 1919 1240" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Email Tasks</a>, to change from using a report reference to using a report variable, you must change the <b>Report Variable</b> field to <b>Yes</b> and specify the report variable in the <b>Report Unresolved</b> field. Conversely, to change from using a report variable to a using a report reference, you must change the <b>Report Variable</b> field to <b>No</b> and specify the report reference in the <b>Report</b> field.</p> </div>
<b>Wait / Delay Options</b>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>



<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>

Wait Duration In Seconds	If <a href="#">Wait To Start</a> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - - System Default - - Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>

<p>Late Start Time</p>	<p>If <b>Late Start Type</b> = Time; Time after which the task <b>start time</b> is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Start Day Constraint</p>	<p>If <b>Late Start Type</b> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <b>Late Start Day Constraint</b> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <b>Late Start Type</b> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <b>Hold on Start</b> 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.</p>

Late Finish	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>
Late Finish Type	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Late Finish Time	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
Late Finish Day Constraint	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Late Finish Nth Amount	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>


<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>
<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>

Early Finish Nth Amount	If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.
Early Finish Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.  Options: <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> Default is Minutes.
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p><b>Execution Restriction</b></p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p><b>Restriction Period</b></p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p><b>Before Date</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p><b>Before Time</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p><b>After Date</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p><b>After Time</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p><b>Date List</b></p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new Linux/Unix task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.



<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.

<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="275 453 1959 787"> <tr> <td data-bbox="275 453 472 500"><b>Abort Action</b></td> <td data-bbox="472 453 1959 500">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="275 500 472 573"><b>Email Notification</b></td> <td data-bbox="472 500 1959 573">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="275 573 472 646"><b>Set Variable</b></td> <td data-bbox="472 573 1959 646">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="275 646 472 719"><b>SNMP Notification</b></td> <td data-bbox="472 646 1959 719">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="275 719 472 787"><b>System Operation</b></td> <td data-bbox="472 719 1959 787">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .										
<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .										
<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .										
<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<p><b>Virtual Resources</b></p>	<p>Lists all <a href="#">Virtual Resources</a> to which this task is assigned.</p>										
<p><b>Mutually Exclusive</b></p>	<p>Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.</p>										
<p><b>Instances</b></p>	<p>Lists all instances of the task.</p>										
<p><b>Triggers</b></p>	<p>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: &lt;current task name&gt;#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see <a href="#">Triggers</a>.</p>										
<p><b>Notes</b></p>	<p>Lists all <a href="#">notes</a> associated with this record.</p>										
<p><b>Versions</b></p>	<p>Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a>.</p>										

## 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](#).

Update Force Finish Re-run Delete Refresh Close

Email Task Instance Virtual Resources Exclusive Requests Notes

**General**

Instance Name:  Reference Id:

Task:  Invoked By:

Task Description:

Member of Business Services:  Execution User:

Calendar:  Time Zone Preference:

Virtual Resource Priority:  Hold Resources on Failure:

**Status**

Status:

Status Description:

Operational Memo:

Trigger Time:  Launch Time:

Wait Until Time:

Start Time:  End Time:

Duration:

**Email Details**

Email Template:

Email Template Variable:  Email Connection:

Reply-To:

To:

Cc:

Bcc:

Subject:

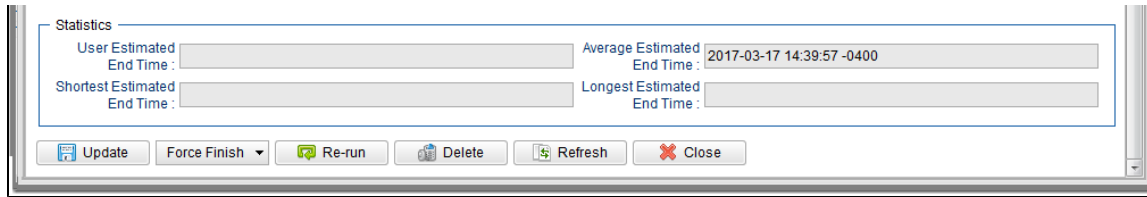
Body:

Report:  Report Variable:

**Wait/Delay Options**

Wait To Start:

Delay On Start:




## 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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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: <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
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	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
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.
<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.
<b>Email Details</b>	This section contains assorted detailed information about the task instance.
Email Template	<p>Name of an <a href="#">Email template</a> 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.</p> <p>Every <a href="#">Email template</a> specifies an Email connection. If you do not specify an Email template in this field, you must specify an Email connection in the <a href="#">Email Connection</a> field.</p> <p>If you specify both an Email template (in this field) and an <a href="#">Email Connection</a>, the Email server specified in the <a href="#">Email Connection</a> field overrides the Email server specified in this field.</p> <p>(Any information specified in an Email task overrides what is specified in an Email template.)</p>
Email Template Variable	<p>Indication of whether the <a href="#">Email Template</a> field is a reference field for selecting a specific <a href="#">Email Template</a> (unchecked) or a text field for specifying the <a href="#">Email Template</a> as a variable (checked). Use the format: <code>\$(variable name)</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Email Template reference to using a Email Template variable, you must change the <b>Email Template Variable</b> field to <b>Yes</b> and specify the Email Template variable in the <b>Email Template Unresolved</b> field. Conversely, to change from using an Email Template variable to using an Email Template reference, you must change the <b>Email Template Variable</b> field to <b>No</b> and specify the Email Template reference in the <b>Email Template</b> field.</p> </div>



Email Connection	<p>Required if an Email Template is not specified in the <a href="#">Email Template</a> field; Name of an outgoing <a href="#">Email Connection</a> (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).</p> <p>If you specify both an <a href="#">Email Template</a> and an Email Connection (in this field), the Email Connection specified in this field overrides the Email Connection specified in the <a href="#">Email Template</a> field.</p>
Reply-To	<p>Email address of the sender. Use commas to separate multiple recipients. <a href="#">Variables and functions</a> supported.</p>
To	<p>Email address of the recipient. Use commas to separate multiple recipients. <a href="#">Variables and functions</a> supported.</p>
CC	<p>Email address of the party being sent a copy of the email, if any. Use commas to separate multiple recipients. <a href="#">Variables and functions</a> supported.</p>
BCC	<p>Email address of the party being sent a blind (hidden) copy of the email, if any. Use commas to separate multiple recipients. <a href="#">Variables and functions</a> supported.</p>
Subject	<p>Subject line of the email. <a href="#">Variables and functions</a> supported.</p>
Body	<p>Text of the email message. <a href="#">Variables and functions</a> supported. If both the email template and the email task contain text in the body, the text is appended.</p>
Report	<p><a href="#">Report</a> attached to this email.</p>
Report Variable	<p>Indication of whether the <a href="#">Report</a> field is a reference field for selecting a specific <a href="#">Report</a> (unchecked) or a text field for specifying the <a href="#">Report</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="310 1084 1919 1240" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Email Tasks</a>, to change from using a report reference to using a report variable, you must change the <b>Report Variable</b> field to <b>Yes</b> and specify the report variable in the <b>Report Unresolved</b> field. Conversely, to change from using a report variable to a using a report reference, you must change the <b>Report Variable</b> field to <b>No</b> and specify the report reference in the <b>Report</b> field.</p> </div>
<b>Wait / Delay Options</b>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>

<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>

Wait Duration In Seconds	If <a href="#">Wait To Start</a> = 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: <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <b>Early Finish Type</b> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <b>Early Finish Day Constraint</b> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <b>Early Finish Type</b> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <b>CP Duration Unit</b> 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.</p>

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>



Before Date	If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.
Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.

<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Retrieve Output</b>	See <a href="#">Retrieving Output</a> .
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Notes</b>	Lists all <a href="#">notes</a> 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](#).

# Task Monitor Task

- Overview
- Built-In Variables
- Processing Flow for Task Monitors
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  - 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
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  - Task Monitor Task Details Field Descriptions
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  - 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**

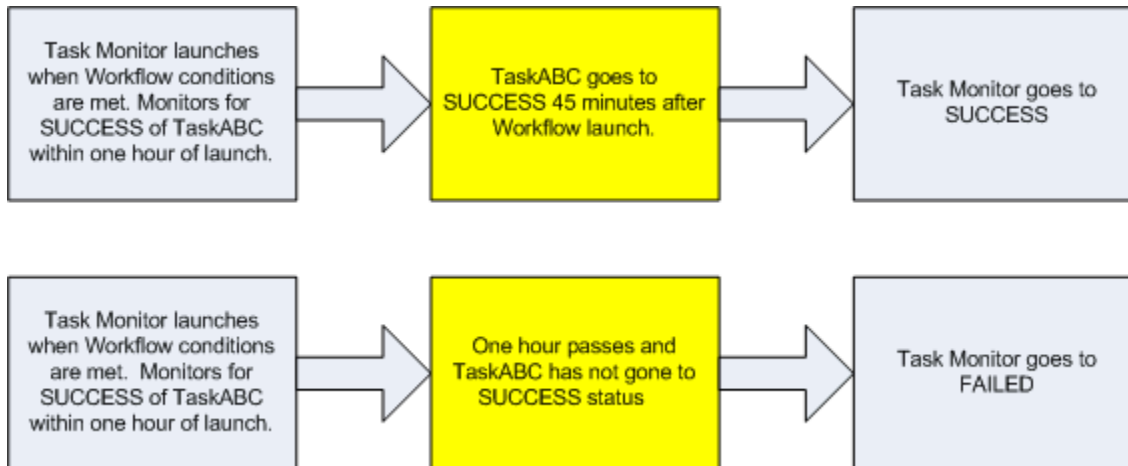
Any changes made to a Task Monitor task are not recognized by its respective Triggers until those Triggers are disabled and re-enabled.

## 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.

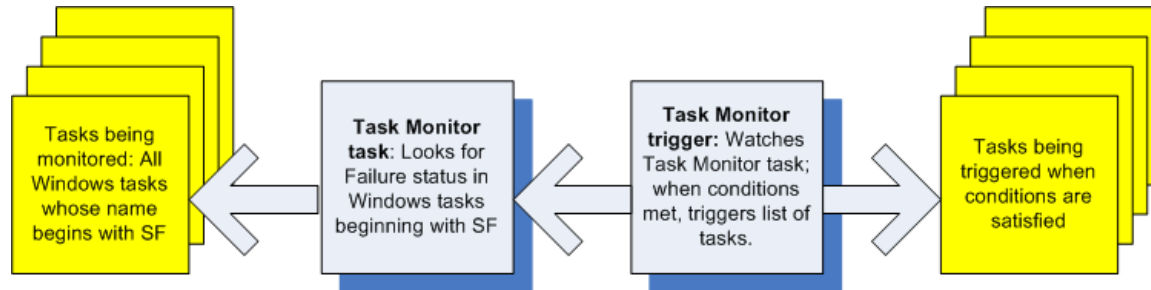


## Launching a Task Monitor Task Using a Task Monitor Trigger

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.



## Launching a Task Monitor Task Manually or Via Other Trigger

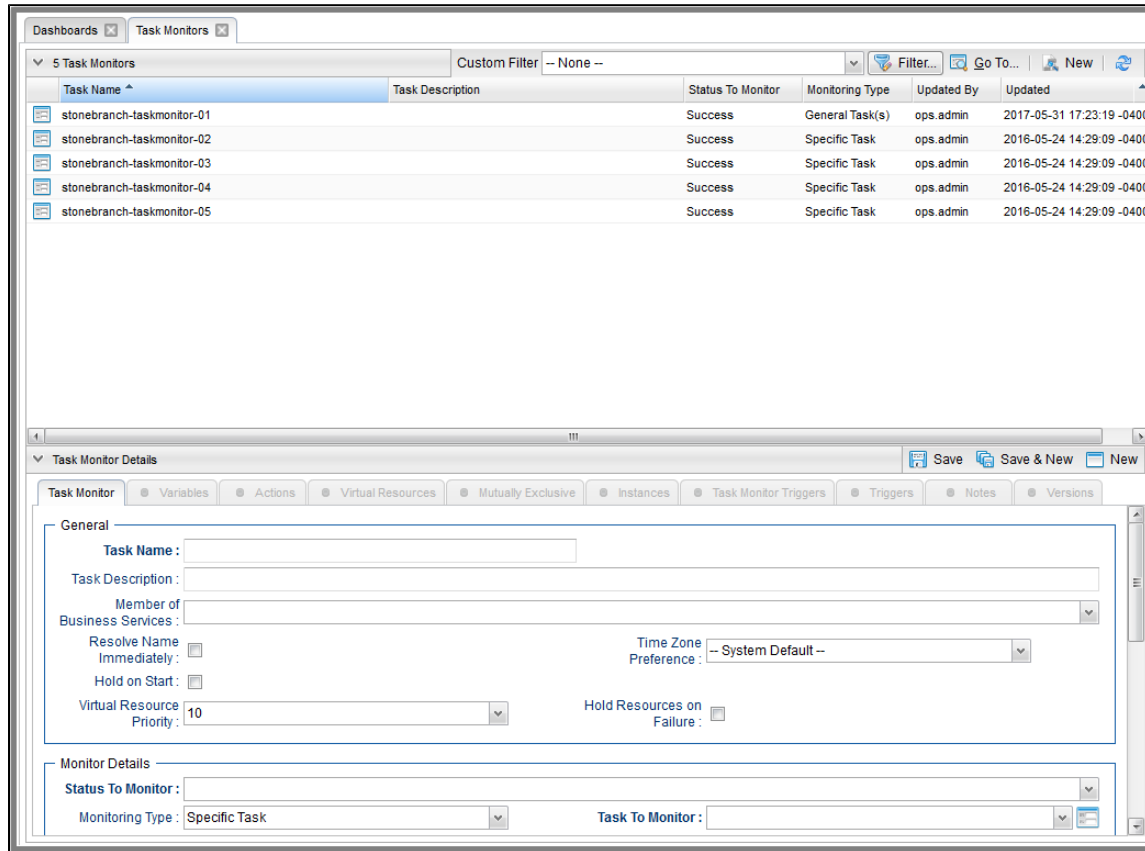
If you manually launch a Task Monitor task or launch it using a trigger other than a Task Monitor trigger, such as a Time trigger, the task continues running until its specified conditions are met. When that occurs, the Task Monitor goes to SUCCESS. No other processing occurs unless you have configured 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.



**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.




## 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
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions</a> tab to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> 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) - 20 (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.
<b>Task Monitor Details</b>	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 status only, or status and exit code. You can specify as many statuses as needed (see <a href="#">Task Statuses</a> ).
Monitoring Type	Specifies which task or tasks are being monitored.  Options: <ul style="list-style-type: none"> <li>• Specific Task - One task is being monitored. Use the <a href="#">Task to Monitor</a> field to specify the task name.</li> <li>• General Tasks - Allows you to specify selection parameters that determine which task or tasks to be monitored. Use the <a href="#">Task Name Condition</a> and <a href="#">Task Type to Monitor</a> fields to create your selection parameters.</li> </ul>
Task to Monitor	If <a href="#">Monitoring Type</a> = 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 <a href="#">Monitoring Type</a> = 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: <ul style="list-style-type: none"> <li>• - - None - -</li> <li>• Equals</li> <li>• Starts With</li> <li>• Contains</li> <li>• Ends With</li> </ul>
Task Type to Monitor	If <a href="#">Monitoring Type</a> = General Tasks; allows you to define specific task types to monitor for. For example, to monitor all SQL tasks, you would select <a href="#">Monitoring Type</a> = General Tasks, then select <a href="#">Task Type to Monitor</a> = SQL Tasks.
Task Name Starts With	If <a href="#">Task Name Condition</a> = Starts With; Character string at the start of the name of a task or tasks being monitored for.
Task Name Contains	If <a href="#">Task Name Condition</a> = Contains; Character string in the name of a task or tasks being monitored for.
Task Name Ends With	If <a href="#">Task Name Condition</a> = Ends With; Character string at the end of the name of a task or tasks being monitored for.
Task Name Equals	If <a href="#">Task Name Condition</a> = Equals; Character string equaling the name of a task or tasks being monitored for.

Resolve Task Name Condition	<p>If <a href="#">Monitoring Type</a> = General Task(s) and <a href="#">Task Name Condition</a> = 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.</p> <p>Default is false.</p>
Workflow Name Condition	<p>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.</p> <p>Only tasks in workflows meeting the specified condition value will be monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - - None - -</li> <li>• Equals</li> <li>• Starts With</li> <li>• Contains</li> <li>• Ends With</li> </ul>
Workflow Name Equals	<p>Optional if <a href="#">Workflow Name Condition</a> = 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.</p>
Workflow Name Starts With	<p>Required if <a href="#">Workflow Name Condition</a> = Starts With; Character string at the start of the name of a workflow or workflows containing the task being monitored for.</p>
Workflow Name Contains	<p>Required if <a href="#">Workflow Name Condition</a> = Contains; Character string in the name of a workflow or workflows containing the task being monitored for.</p>
Workflow Name Ends With	<p>Required if <a href="#">Workflow Name Condition</a> = Ends With; Character string at the end of the name of a workflow or workflows containing the task being monitored for.</p>
Time Scope	<p>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 <a href="#">From</a> time field and 02:00 in the <a href="#">To</a> 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.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> For additional details, see <a href="#">Understanding Relative Time Scope</a>, below.</p> </div>

<p>From [+/-]hh:mm:</p>	<p>If <b>Time Scope</b> = Relative; used for Task Monitor tasks not associated with a trigger. Together with the Time Scope <b>To</b> 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.</p> <p>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 <b>To</b> time has passed.</p>
<p>To [+/-]hh:mm:</p>	<p>If <b>Time Scope</b> = Relative; used for Task Monitor tasks not associated with a trigger. Together with the Time Scope <b>From</b> 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.</p> <p>If the conditions in the Task Monitor task are met before the Time Scope <b>To</b> time arrives, the Task Monitor task goes to SUCCESS. If the conditions are not met by the Time Scope <b>To</b> time, the Task Monitor task goes to FAILED status.</p>
<p><b>Wait / Delay Options</b></p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - - System Default - - Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>




<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>

Early Finish	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	<p>If <a href="#">Early Finish Type</a> = 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.</p>
Early Finish Day Constraint	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Early Finish Nth Amount	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

Early Finish Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p><b>Execution Restriction</b></p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p><b>Restriction Period</b></p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p><b>Before Date</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p><b>Before Time</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p><b>After Date</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p><b>After Time</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p><b>Date List</b></p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.

<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b>              You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.

<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="275 453 1961 787"> <tr> <td data-bbox="275 453 472 500"><b>Abort Action</b></td> <td data-bbox="472 453 1961 500">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="275 500 472 573"><b>Email Notification</b></td> <td data-bbox="472 500 1961 573">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="275 573 472 646"><b>Set Variable</b></td> <td data-bbox="472 573 1961 646">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="275 646 472 719"><b>SNMP Notification</b></td> <td data-bbox="472 646 1961 719">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="275 719 472 787"><b>System Operation</b></td> <td data-bbox="472 719 1961 787">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
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<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<p><b>Virtual Resources</b></p>	<p>Lists all <a href="#">Virtual Resources</a> to which this task is assigned.</p>										
<p><b>Mutually Exclusive</b></p>	<p>Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.</p>										
<p><b>Instances</b></p>	<p>Lists all instances of this task.</p>										
<p><b>Task Monitor Triggers</b></p>	<p>Lists all Task Monitor triggers that reference this task in the <a href="#">Task Monitor</a> field of the trigger Details; that is, a list of all Task Monitor triggers that execute this task. For instructions on creating triggers, see <a href="#">Triggers</a>.</p>										
<p><b>Triggers</b></p>	<p>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: &lt;current task name&gt;#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see <a href="#">Triggers</a>.</p>										
<p><b>Notes</b></p>	<p>Lists all <a href="#">notes</a> associated with this record.</p>										

<b>Versions</b>	Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a> .
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## 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.

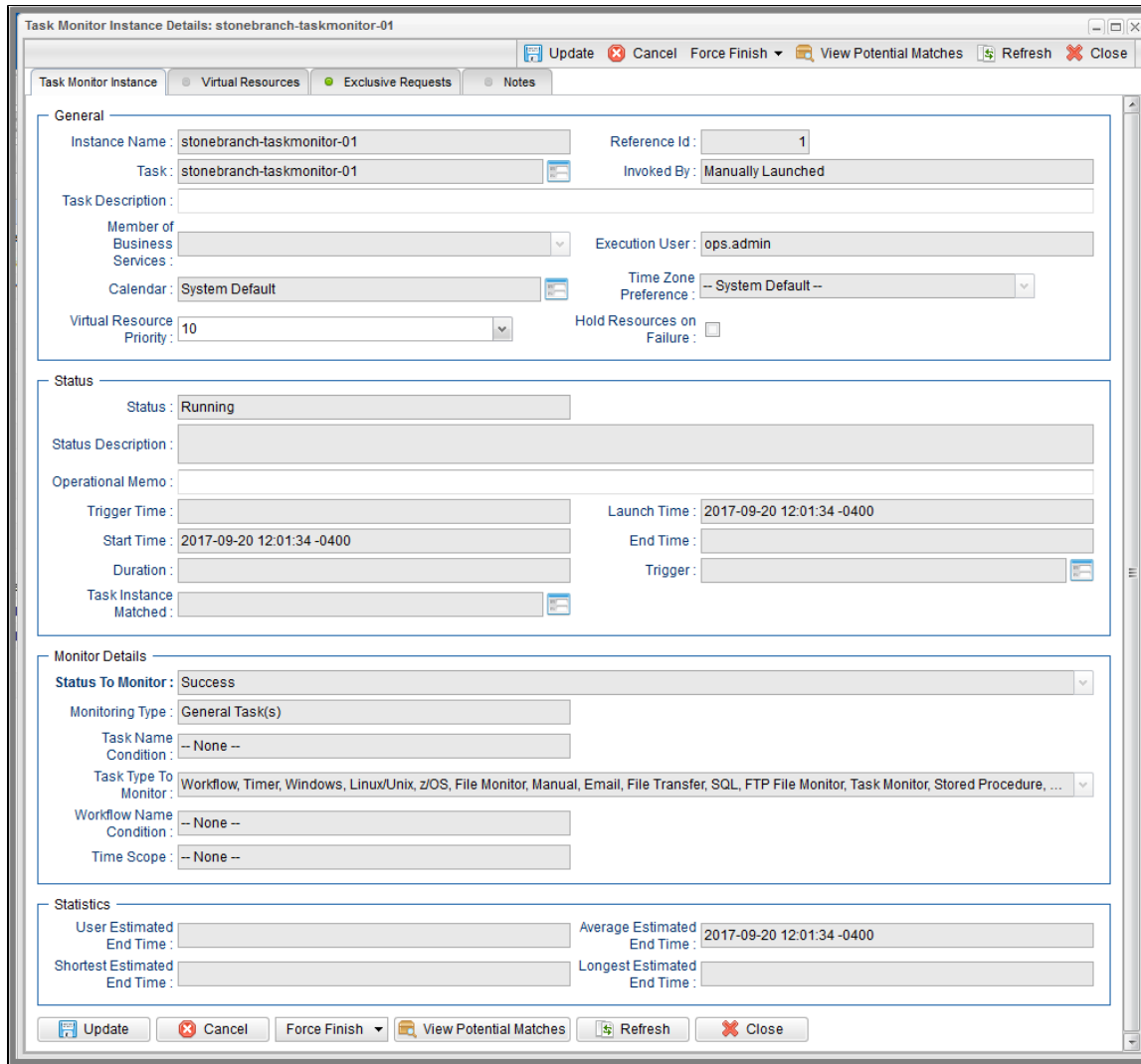
You can access a task instance from:

- **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 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
<b>General</b>	This section contains general information about the task instance.

Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
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	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>

Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	<p>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.</p>
<b>Status</b>	<p>This section contains information about the current status of the task instance.</p>
Status	<p>System-supplied; see <a href="#">Task Instance Statuses</a>.</p>
Status Description	<p>System-supplied; additional information, if any, about the status of the task instance.</p>
Operational Memo	<p>User-defined operational memo.</p>
Evaluation Time	<p>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.)</p>
Critical	<p>Indicates that this task is in the Critical Path of a workflow.</p>
Wait Until Time	<p>Amount of time calculated to wait before the task was started, based on <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> times.</p>
Queued Time	<p>System-supplied; Date and time the task was queued for processing.</p>
Trigger Time	<p>System-supplied; Date and time the task instance was triggered.</p>
Launch Time	<p>System-supplied; Date and time the task instance was launched.</p>
Start Time	<p>System-supplied; Date and time the task instance started.</p>

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.
<b>Task Monitor Details</b>	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 status only, or status and exit code. You can specify as many statuses as needed (see <a href="#">Task Statuses</a> ).
Monitoring Type	<p>Specifies which task or tasks are being monitored.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Specific Task - One task is being monitored. Use the <a href="#">Task to Monitor</a> field to specify the task name.</li> <li>• General Tasks - Allows you to specify selection parameters that determine which task or tasks to be monitored. Use the <a href="#">Task Name Condition</a> and <a href="#">Task Type to Monitor</a> fields to create your selection parameters.</li> </ul>
Task to Monitor	If <a href="#">Monitoring Type</a> = 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	<p>If <a href="#">Monitoring Type</a> = 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.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None --</li> <li>• Equals</li> <li>• Starts With</li> <li>• Contains</li> <li>• Ends With</li> </ul>
Task Name Starts With	If <a href="#">Task Name Condition</a> = Starts With; character string at the start of the name of a task or tasks being monitored for.
Task Name Contains	If <a href="#">Task Name Condition</a> = Contains; character string in the name of a task or tasks being monitored for.

Task Name Ends With	If <b>Task Name Condition</b> = Ends With; character string at the end of the name of a task or tasks being monitored for.
Task Name Equals	If <b>Task Name Condition</b> = Equals; Character string equaling the name of a task or tasks being monitored for.
Workflow Name Condition	<p>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.</p> <p>Only tasks in workflows meeting the specified condition value will be monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None --</li> <li>• Equals</li> <li>• Starts With</li> <li>• Contains</li> <li>• Ends With</li> </ul>
Workflow Name Equals	Optional if <b>Workflow Name Condition</b> = 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 <b>Workflow Name Condition</b> = 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 <b>Workflow Name Condition</b> = Contains; Character string in the name of a workflow or workflows containing the task being monitored for.
Workflow Name Ends With	Required if <b>Workflow Name Condition</b> = Ends With; Character string at the end of the name of a workflow or workflows containing the task being monitored for.
Time Scope	<p>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 <b>From</b> time field and 02:00 in the <b>To</b> 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.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> For additional details, see <a href="#">Understanding Relative Time Scope</a>, below.</p> </div>

<p>From [+/-]hh:mm:</p>	<p>If <b>Time Scope</b> = Relative; used for Task Monitor tasks not associated with a trigger. Together with the Time Scope <b>To</b> 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.</p> <p>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 <b>To</b> time has passed.</p>
<p>To [+/-]hh:mm:</p>	<p>If <b>Time Scope</b> = Relative; used for Task Monitor tasks not associated with a trigger. Together with the Time Scope <b>From</b> 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.</p> <p>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.</p>
<p><b>Wait / Delay Options</b></p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.



<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <b>Early Finish Type</b> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <b>Early Finish Day Constraint</b> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <b>Early Finish Type</b> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <b>CP Duration Unit</b> 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.</p>

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>

Before Date	If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.
Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.

<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Delete</b>	Deletes the current record.
<b>View Potential Matches</b>	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 <a href="#">Viewing Potential Matches for a Running Task Monitor Task Instance</a> , below).
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.

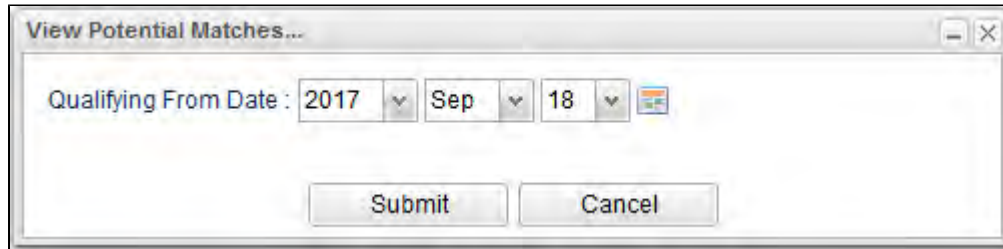
## Viewing Potential Matches for a Running Task Monitor Task Instance

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.



**Step 3** A list of all potential matches displays in a new tab.

Instance Name	Type	Status	Invoked By	Start Time	End Time	Updated
stonebranch-manualltask-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

**Step 4** Click **Print** to print a hard copy of the list or **Refresh** to refresh the task instances on the list.

## 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'
```



### Note

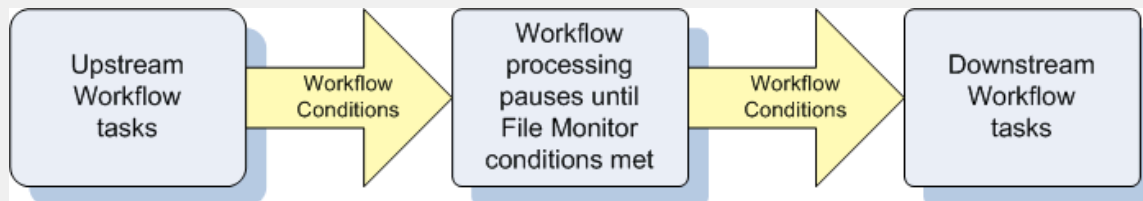
Any changes made to a File Monitor task are not recognized by its respective Triggers until those Triggers are disabled and re-enabled.

## Launching a File Monitor Task Within a Workflow

The 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 File Monitor task are satisfied. If the File Monitor is watching for the creation, change, or deletion of a file, the task goes to SUCCESS when the event occurs. If the 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.



## Launching a File Monitor Task Using a File Monitor Trigger

A common use for the File Monitor task is to launch it using a [File Monitor trigger](#), which specifies one or more tasks that are launched when a condition(s) is satisfied.

In this scenario, the File Monitor task launches when its associated File Monitor trigger is enabled.



**Note**

You should use a File Monitor trigger to launch only File Monitor tasks that specify a single Agent, not an Agent Cluster. A 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 File Monitor task are satisfied, the File Monitor task goes to SUCCESS and the tasks listed in the associated trigger are launched. The 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 shouldn't be there or didn't 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 File Monitor task goes to FINISHED or SUCCESS, the associated File (Monitor) trigger is automatically disabled.

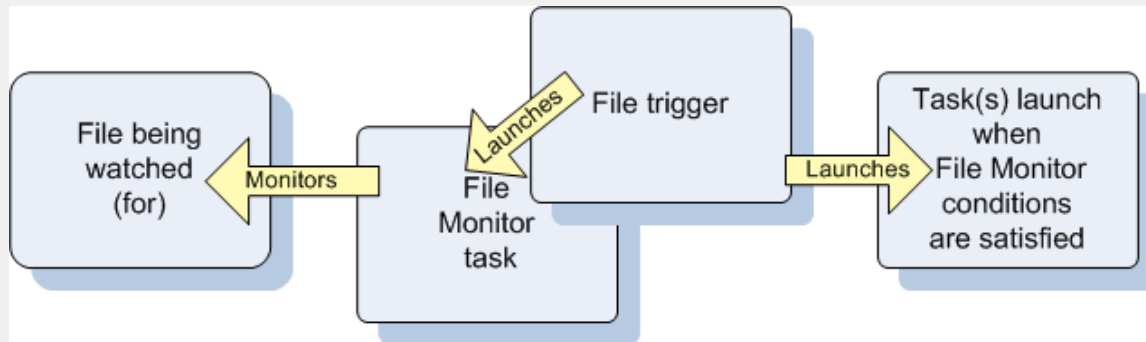


**Note**

Using a File Monitor trigger to trigger a 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 a File Monitor task from a File 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.



### Launching a File Monitor Task Manually or Via Other Trigger

If you manually launch a File Monitor task or launch it using a non-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 a File Monitor task to pass data where appropriate:

- `Task Instance variables`
- `Agent-Based Task Instance variables`
- `File Monitor Task variables`

## Creating a File Monitor Task

**Step 1**

From the [Automation Center](#) navigation pane, select **Tasks > File Monitor Tasks**. The File Monitor Tasks list displays a list of all currently defined File Monitor tasks.

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

The screenshot shows the 'File Monitors' section of the Universal Controller interface. At the top, there are tabs for 'Dashboards' and 'File Monitors'. Below this is a list of 5 file monitors, each with a task name, description, monitor type, updated by user, and updated timestamp.

Task Name	Task Description	Monitor Type	Updated By	Updated
stonebranch-filemonitor-01	Demo File Monitor	Create	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-filemonitor-02		Create	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-filemonitor-03		Create	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-filemonitor-04		Create	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-filemonitor-05		Create	ops.admin	2016-05-24 14:29:09 -0400

Below the list is the 'File Monitor Details' section, which is currently showing the configuration for a new task. The 'General' tab is active, and the configuration includes:

- Task Name:** (empty text field)
- Task Description:** (empty text field)
- Member of Business Services:** (dropdown menu)
- Resolve Name Immediately:**
- Hold on Start:**
- Virtual Resource Priority:** 10 (dropdown menu)
- Time Zone Preference:** -- System Default -- (dropdown menu)
- Hold Resources on Failure:**
- File Monitor Details:**
  - Agent:** (dropdown menu)
  - Agent Cluster:** (dropdown menu)
  - Agent Variable:**
  - Agent Cluster Variable:**

**Step 2**

Enter/select Details for a new 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](#)).

## File Monitor Task Details

The following File Monitor Task Details is for an existing File Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the 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 File Monitor Task Details.



File Monitor Details: stonebranch-filemonitor-01

Update Launch Task View Parents Copy Delete Refresh Close

File Monitor Variables Actions Virtual Resources Mutually Exclusive Instances File Monitor Triggers Triggers Notes Versions

**General**

Task Name: stonebranch-filemonitor-01 Version: 4

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:

**File Monitor Details**

Agent: DVZOS111 - NAHZOS52 Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials: stonebranch-credential-01 Cluster Broadcast:

Credentials Variable:

Monitor Type: Create Trigger on Existence:

Monitor File(s): file 1

Use Regular Expression:

Recursive:  Maximum Files:

File Owner:

Stable (seconds):

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 --

Update Launch Task View Parents Copy Delete Refresh Close


## File Monitor Task Details Field Descriptions


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


Field Name	Description
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <code>variables</code> supported. It is the responsibility of the user to develop a workable <code>naming scheme</code> 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 <code>Versions</code> tab to view previous versions. For details, see <code>Record Versioning</code> .
Task Description	Description of this record. (Maximum = 200 characters.)

Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - System Default - Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> it.
Hold Reason	Information about why the task will be put on hold when it starts.

<p>Virtual Resource Priority</p>	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
<p>Hold Resources on Failure</p>	<p>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.</p>
<p><b>File Monitor Details</b></p>	<p>This section contains assorted detailed information about the task.</p>
<p>Agent</p>	<p>Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a>.</p>

Agent Variable	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="422 415 1854 586" style="background-color: #ffffcc; padding: 10px;"><p> <b>Note</b> When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p></div>
Agent Cluster	<p>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 <a href="#">Agent Clusters</a> for more information.</p>

<p>Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="422 367 1854 565" style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>
<p>Cluster Broadcast</p>	<p>Group of Agents, all of which will run this task (compare with Agent Cluster). You can specify a Cluster Broadcast in place 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.</p>
<p>Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>

Credentials Variable	<p>Indication of whether the <code>Credentials</code> field is a reference field for selecting a specific <code>Credential</code> (unchecked) or a text field for specifying the <code>Credential</code> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="420 391 1854 586" style="background-color: #ffffcc; padding: 10px;"><p> <b>Note</b> When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p></div>
Monitor Type	<p>Type of file event being monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"><li>• Create - Wait for the creation of one or more files.</li><li>• Delete - Wait for the deletion of one or more files.</li><li>• Change - Monitor for a change in one or more files. [<b>NOTE:</b> not supported for z/OS.]</li><li>• Exists - Check to see if one or more files already exist.</li><li>• Missing - Check to see if one or more files do not exist.</li></ul>

<p>Trigger on Existence</p>	<p>If <b>Monitor Type</b> = Create; task is triggered if the file being monitored for creation already exists.</p>
<p>Monitor File(s)</p>	<p>Location and name of a specific file or file pattern (for example, ACT001*) being monitored. <b>Variables</b> supported. <b>Wildcards</b> supported.</p>
<p>Use Regular Expression</p>	<p>Enables the use of a <b>regular expression</b> in the <b>Monitor File(s)</b> field.</p>
<p>Recursive</p>	<p>If enabled, the monitor searches the specified directory and all subdirectories.</p>
<p>Maximum Files</p>	<p>If <b>Monitor Type</b> = Create, Delete, or Change; For searches that use wildcards, limits the number of files to be searched.</p>
<p>File Owner</p>	<p>If <b>Monitor Type</b> = 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.</p>
<p>Stable (seconds)</p>	<p>If <b>Monitor Type</b> = Change or Create: Period of time, in seconds, during which the file has not changed (File Monitor checks the modification timestamp and the file size).</p>
<p>By Percentage (+/-)</p>	<p>If <b>Monitor Type</b> = Change, the amount that the file size has changed, expressed as a percentage of the original file size. For example, enter 10 to monitor for a change in file size of 10 percent (larger or smaller).</p>



<p>By Size (+/-)</p>	<p>If <b>Monitor Type</b> = 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.</p>
<p>By Scale</p>	<p>If <b>Monitor Type</b> = Change, used in conjunction with the By Size field, specifies Bytes, KB (kilobytes), or MB (megabytes). For example, to monitor for a change in file size of 10MB, enter 10 in the <b>By Size</b> field and select MB in this field.</p>
<p>To Size</p>	<p>If <b>Monitor Type</b> = 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.</p>
<p>To Scale</p>	<p>If <b>Monitor Type</b> = Change, used in conjunction with the To Size 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 the To Size field and select KB in this field.</p>
<p>Scan Text</p>	<p>If <b>Monitor Type</b> = Change or Exists, or if <b>Monitor Type</b> = Create and a value for <b>Stable (seconds)</b> is specified; string that the monitor will search for in the file or files. Specifying a string means that only files containing the string constitute a match. The Controller will process this field as a regular expression.</p> <p>The result (string is found or not found) is set in the <b>Trigger File Scan Result</b> built-in variable.</p>
<p>Scan Forward</p>	<p>If <b>Monitor Type</b> = Change; if enabled, this field 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.</p> <p>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.</p>

<p><b>Wait / Delay Options</b></p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - None -</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <code>Wait To Start</code> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

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 --.

<p>Wait Duration</p>	<p>If <code>Wait To Start</code> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <code>Wait To Start</code> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - None -</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Delay Duration</p>	<p>If <code>Delay On Start</code> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If <code>Delay On Start</code> = Seconds; Number of seconds to delay after starting the task.</p>

<p>Workflow Only</p>	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - - System Default - - Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<p><b>Time Options</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>
<p>Late Start</p>	<p>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 <a href="#">Late Start Type</a>). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.</p>

<p>Late Start Type</p>	<p>Required if <code>Late Start</code> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <code>start time</code>.</li> </ul>
<p>Late Start Time</p>	<p>If <code>Late Start Type = Time</code>; Time after which the task <code>start time</code> is considered late. Use HH:MM, 24-hour time.</p>

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 --.

<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>



<p>Late Finish Type</p>	<p>Required if <code>Late Finish</code> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"><li>• <code>Time</code> - Flag the task if it finishes after the specified time (see <code>Late Finish Time</code>).</li><li>• <code>Duration</code> - Flag the task if it finishes a certain amount of time after the programmed finish time (see <code>Late Finish Duration</code>). The task must have a specific finish time.</li></ul>
<p>Late Finish Time</p>	<p>If <code>Late Finish Type</code> = <code>Time</code>; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>

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 --.

<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>

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 --.

<p>Early Finish Nth Amount</p>	<p>If <code>Early Finish Day Constraint = Nth Day</code>; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <code>Early Finish Type = Duration</code>; Shortest amount of time this task instance should take to run.</p>
<p>User Estimated Duration</p>	<p>Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <code>User Estimated End Time</code> on a task instance record.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <code>CP Duration Unit</code> 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.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <code>CP Duration</code> 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 <code>CP Duration</code> 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 <code>CP Duration</code>. If the Controller is unable to resolve <code>CP Duration</code> or it resolves to an invalid value, <code>CP Duration</code> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>


<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>

<p>Restriction Period</p>	<p>If <code>Execution Restriction</code> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - None - No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <code>Before Date</code> value.</li> <li>• After Restriction is valid if the date is after the <code>After Date</code> value.</li> <li>• Span Restriction is valid if the date is before the <code>Before Date</code> value and after <code>After Date</code> value.</li> <li>• On Restriction is valid if the date is one of the <code>Date List</code> values.</li> </ul>
<p>Before Date</p>	<p>If <code>Restriction Period</code> = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If <code>Restriction Period</code> = Before or Span; Time on the selected date before which the restriction is valid.</p>

After Date	If <code>Restriction Period</code> = After or Span; Date after which the restriction is valid.
After Time	If <code>Restriction Period</code> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <code>Restriction Period</code> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	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; shortest 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; longest amount of time this task has taken to run.



Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <b>Metadata</b> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.
<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.

<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div data-bbox="420 365 1852 703" style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>• Specified in an enabled Trigger.</li> <li>• The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.
<b>Actions</b>	<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

Actions are:

<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .
<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .
<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .
<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .

**Virtual Resources**

Lists all [Virtual Resources](#) to which this task is assigned.

<b>Mutually Exclusive</b>	Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.
<b>Instances</b>	Lists all instances of this task.
<b>File Monitor Triggers</b>	Lists all File Monitor triggers that reference this task in the <a href="#">File Monitor</a> field of the trigger Details; that is, a list of all File Monitor triggers that execute this task. For instructions on creating triggers, see <a href="#">Triggers</a> .
<b>Triggers</b>	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 <a href="#">Triggers</a> .
<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.
<b>Versions</b>	Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a> .

## Viewing a File Monitor Task Instance

When a 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 [File Monitor Task Details](#) for that task
- [Activity Monitor](#)
- [Task Instances list](#)

## **File Monitor Task Instance Details**

The following File Monitor Task Instance Details contains information on the execution of the task shown in the [File Monitor Task Details](#).

File Monitor Instance Details: stonebranch-filemonitor-01

Update Re-run View Parent Delete Refresh Close

File Monitor Instance Virtual Resources Exclusive Requests Notes

**General**

Instance Name: stonebranch-filemonitor-01 Reference Id: 1

Task: stonebranch-filemonitor-01 Invoked By: Manually Launched

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 Exit Code: 0

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: 46 Seconds

**File Monitor Details**

Agent: DVZOS111 - NAHZOS52 Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials: Credentials Variable:

Monitor Type: Delete

Monitor File(s): TEMP:FILE

Use Regular Expression:

Recursive:  Maximum Files:

File Owner:

**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: 2014-06-27 09:26:59 -0400

Shortest Estimated End Time: Longest Estimated End Time:



### File Monitor Task Instance Details Field Descriptions

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

Field Name	Description
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.


<p>Invoked by</p>	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
<p>Task Description</p>	<p>Description of this record. (Maximum = 200 characters.)</p>
<p>Member of Business Services</p>	<p>User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.</p>
<p>Execution User</p>	<p>System-supplied; If the task was launched manually; ID of the user who launched it.</p>
<p>Calendar</p>	<p>Calendar associated with the task instance.</p>




<p>Time Zone Preference</p>	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - System Default - Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
<p>Virtual Resource Priority</p>	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
<p>Hold Resources on Failure</p>	<p>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.</p>

<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.

<p>Launch Time</p>	<p>System-supplied; Date and time the task instance was launched.</p>
<p>Start Time</p>	<p>System-supplied; Date and time the task instance started.</p>
<p>End Time</p>	<p>System-supplied; Date and time the task instance completed.</p>
<p>Duration</p>	<p>System-supplied; amount of time the task instance took to run.</p>
<p><b>File Monitor Details</b></p>	<p>This section contains assorted detailed information about the task instance.</p>
<p>Agent</p>	<p>Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a>.</p>

Agent Variable	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="420 414 1854 586" style="background-color: #ffffcc; padding: 10px;"><p> <b>Note</b> When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p></div>
Agent Cluster	<p>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 <a href="#">Agent Clusters</a> for more information.</p>

<p>Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="422 367 1854 565" style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>
<p>Cluster Broadcast</p>	<p>Group of Agents, all of which will run this task (compare with Agent Cluster). You can specify a Cluster Broadcast in place 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.</p>
<p>Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>

Credentials Variable	<p>Indication of whether the <code>Credentials</code> field is a reference field for selecting a specific <code>Credential</code> (unchecked) or a text field for specifying the <code>Credential</code> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <code>Variables and Functions</code>.</p> <div data-bbox="420 391 1854 586" style="background-color: #ffffcc; padding: 10px;"><p> <b>Note</b> When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p></div>
Monitor Type	<p>Type of file event being monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"><li>• Create - Wait for the creation of one or more files.</li><li>• Delete - Wait for the deletion of one or more files.</li><li>• Change - Monitor for a change in one or more files. [<b>NOTE:</b> not supported for z/OS.]</li><li>• Exists - Check to see if one or more files already exist.</li><li>• Missing - Check to see if one or more files do not exist.</li></ul>

Trigger on Existence	If <b>Monitor Type</b> = Create; task is triggered if the file being monitored for creation already exists.
Monitor File(s)	Location and name of a specific file or file pattern (for example, ACT001*) being monitored. <b>Variables</b> supported. <b>Wildcards</b> supported.
Use Regular Expression	Enables the use of a <b>regular expression</b> in the <b>Monitor File(s)</b> field.
Recursive	If enabled, the monitor searches the specified directory and all subdirectories.
Maximum Files	If <b>Monitor Type</b> = Create, Delete, or Change; For searches that use wildcards, limits the number of files to be searched.
File Owner	If <b>Monitor Type</b> = 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 <b>Monitor Type</b> = Change or Create: Period of time, in seconds, during which the file has not changed (File Monitor checks the modification timestamp and the file size).
By Percentage (+/-)	If <b>Monitor Type</b> = Change, the amount that the file size has changed, expressed as a percentage of the original file size. For example, enter 10 to monitor for a change in file size of 10 percent (larger or smaller).
By Size (+/-)	If <b>Monitor Type</b> = Change, used in conjunction with the <b>By Scale</b> 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 <b>By Scale</b> field.

<p>By Scale</p>	<p>If <b>Monitor Type</b> = Change, used in conjunction with the By Size field, specifies Bytes, KB (kilobytes), or MB (megabytes). For example, to monitor for a change in file size of 10MB, enter 10 in the <b>By Size</b> field and select MB in this field.</p>
<p>To Size</p>	<p>If <b>Monitor Type</b> = 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.</p>
<p>To Scale</p>	<p>If <b>Monitor Type</b> = Change, used in conjunction with the To Size 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 the To Size field and select KB in this field.</p>
<p>Scan Text</p>	<p>If <b>Monitor Type</b> = Change or Exists, or if <b>Monitor Type</b> = Create and a value for <b>Stable (seconds)</b> is specified; string that the monitor will search for in the file or files. Specifying a string means that only files containing the string constitute a match. The Controller will process this field as a regular expression.</p> <p>The result (string is found or not found) is set in the <b>Trigger File Scan Result</b> built-in variable.</p>
<p>Scan Forward</p>	<p>If <b>Monitor Type</b> = Change; if enabled, this field 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.</p> <p>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.</p>
<p><b>Wait / Delay Options</b></p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>



<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"><li>• - None -</li><li>• Time</li><li>• Relative Time</li><li>• Duration</li><li>• Seconds</li></ul>
<p>Wait Time</p>	<p>If <a href="#">Wait To Start</a> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

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 --.

<p>Wait Duration</p>	<p>If <code>Wait To Start</code> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <code>Wait To Start</code> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - None -</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Delay Duration</p>	<p>If <code>Delay On Start</code> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.</p>
<p>Delay Duration In Seconds</p>	<p>If <code>Delay On Start</code> = Seconds; Number of seconds to delay after starting the task.</p>
<p><b>Time Options</b></p>	<p>This section contains time-related specifications for the task instance.</p>

<p>Late Start</p>	<p>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 <a href="#">Late Start Type</a>). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.</p>
<p>Started Late</p>	<p>System-supplied; this field is flagged if the task started later than the time specified in the <a href="#">Late Start</a> fields.</p>
<p>Late Start Type</p>	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
<p>Late Start Time</p>	<p>If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.</p>

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 --.

<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>
<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>

<p>Late Finish Type</p>	<p>Required if <code>Late Finish</code> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <code>Time</code> - Flag the task if it finishes after the specified time (see <code>Late Finish Time</code>).</li> <li>• <code>Duration</code> - Flag the task if it finishes a certain amount of time after the programmed finish time (see <code>Late Finish Duration</code>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <code>Late Finish Type</code> = <code>Time</code>; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>

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 --.



<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Finished Early</p>	<p>System-supplied; this field is flagged if the task finished earlier than the time specified in the <a href="#">Early Finish</a> fields.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>

<p>Early Finish Time</p>	<p>If <code>Early Finish Type = Time</code>; 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.</p>
<p>Early Finish Day Constraint</p>	<p>If <code>Early Finish Type = Time</code>; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --</li> </ul> <p>Advance to the next day if the specified early finish time is before the Created time of the task instance.</p> <ul style="list-style-type: none"> <li>• Same Day</li> </ul> <p>Do not advance day.</p> <ul style="list-style-type: none"> <li>• Next Day</li> </ul> <p>Advance to the next day.</p> <ul style="list-style-type: none"> <li>• Next Business Day</li> </ul> <p>Advance to the next business day.</p> <ul style="list-style-type: none"> <li>• Sunday</li> </ul> <p>If today is not Sunday, advance to next Sunday.</p> <ul style="list-style-type: none"> <li>• Monday</li> </ul> <p>If today is not Monday, advance to next Monday.</p> <ul style="list-style-type: none"> <li>• Tuesday</li> </ul> <p>If today is not Tuesday, advance to next Tuesday.</p> <ul style="list-style-type: none"> <li>• Wednesday</li> </ul> <p>If today is not Wednesday, advance to next Wednesday.</p> <ul style="list-style-type: none"> <li>• Thursday</li> </ul> <p>If today is not Thursday, advance to next Thursday.</p> <ul style="list-style-type: none"> <li>• Friday</li> </ul> <p>If today is not Friday, advance to next Friday.</p> <ul style="list-style-type: none"> <li>• Saturday</li> </ul> <p>If today is not Saturday, advance to next Saturday.</p> <ul style="list-style-type: none"> <li>• Nth Day</li> </ul> <p>Advance to a specific number of days in the future.</p> <p>Default is - None --.</p>

<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>

<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>

<p>Restriction Period</p>	<p>If <code>Execution Restriction</code> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - None - No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <code>Before Date</code> value.</li> <li>• After Restriction is valid if the date is after the <code>After Date</code> value.</li> <li>• Span Restriction is valid if the date is before the <code>Before Date</code> value and after <code>After Date</code> value.</li> <li>• On Restriction is valid if the date is one of the <code>Date List</code> values.</li> </ul>
<p>Before Date</p>	<p>If <code>Restriction Period</code> = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If <code>Restriction Period</code> = Before or Span; Time on the selected date before which the restriction is valid.</p>

After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Metadata</b>	This section contains <a href="#">Metadata</a> information about this record.

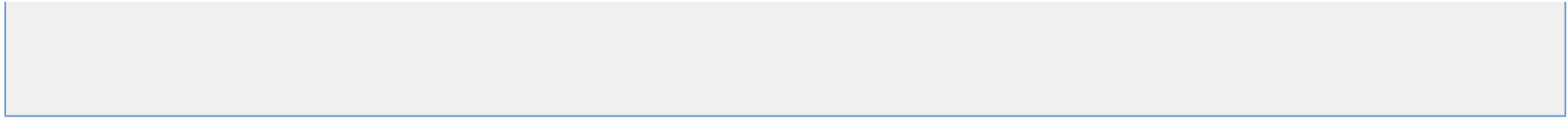
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.

<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Notes</b>	Lists all <a href="#">notes</a> 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](#).





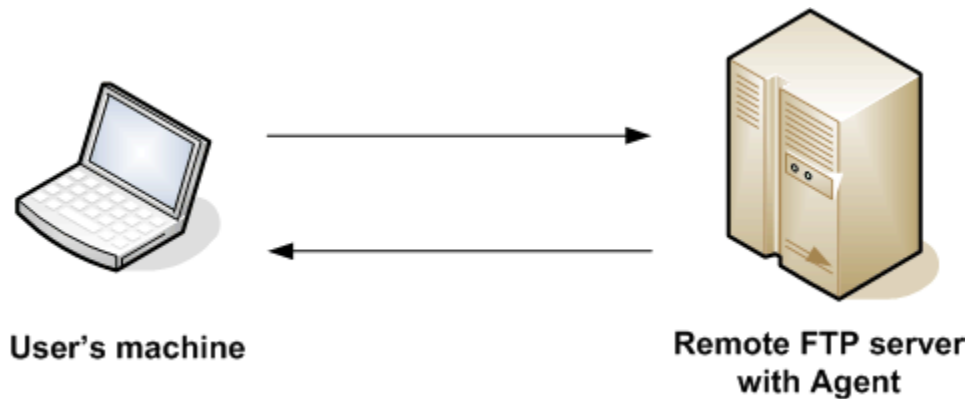
## FTP File Monitor Task

- Overview
- Built-In Variables
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  - FTP File Monitor Task Details Field Descriptions
- Viewing an FTP File Monitor Task Instance
  - FTP File Monitor Task Instance Details
  - FTP File Monitor Task Instance Details Field Descriptions
- Running an FTP File Monitor Task
- Monitoring Task Execution
- Built-In Variables

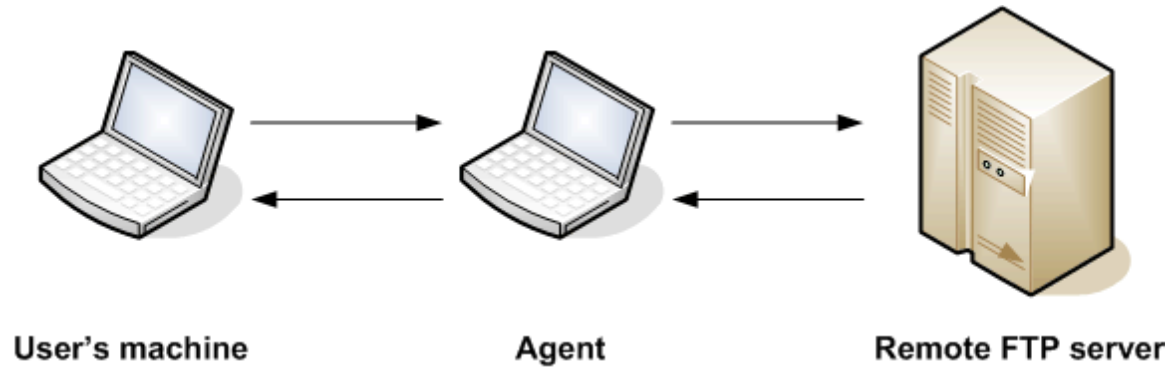
### Overview

The FTP File Monitor task allows you to monitor for a file on a remote machine where an FTP server is running. The FTP File Monitor connects to the FTP server rather than the machine's file system to monitor for files. The FTP File Monitor can be used only within a workflow; you cannot run a FTP File Monitor task based on a trigger. To run an FTP 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 FTP 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.



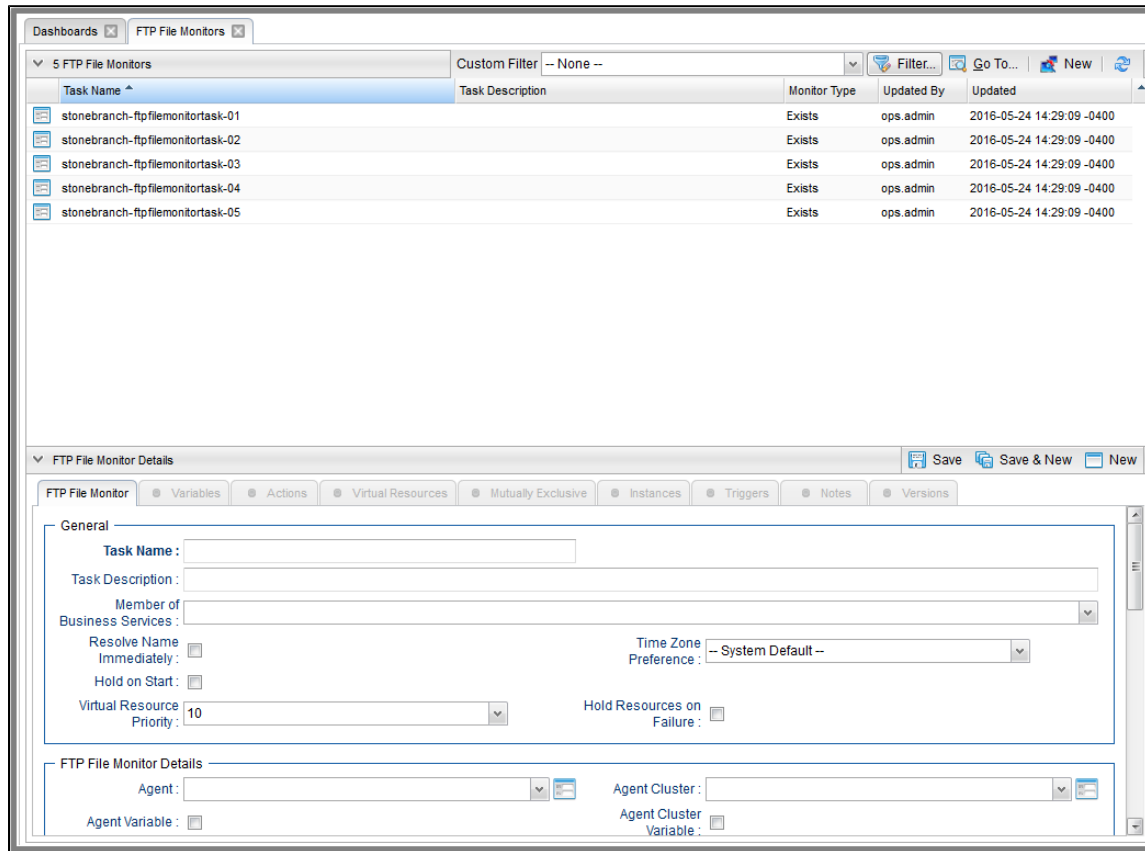
## Built-In Variables

The following [built-in variables](#) can be used in an FTP File Monitor task to pass data where appropriate:

- [Task Instance variables](#)
- [Agent-Based Task Instance variables](#)
- [FTP File Monitor Task variables](#)

## Creating an FTP File Monitor Task

**Step 1** From the Automation Center navigation pane, select **Tasks > FTP File Monitor Tasks**. The FTP File Monitor Tasks list displays a list of all currently defined FTP File Monitor tasks. Below the list, FTP File Monitor Task Details for a new FTP File Monitor task displays.



**Step 2** Enter/select Details for a new FTP 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](#)).

## FTP File Monitor Task Details

The following FTP File Monitor Task Details is for an existing File Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the FTP 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 FTP File Monitor Task Details.

FTP File Monitor Details: stonebranch-ftpfilemonitortask-01

Update Launch Task View Parents Copy Delete Refresh Close

FTP File Monitor Variables Actions Virtual Resources Mutually Exclusive Instances Triggers Notes Versions

**General**

Task Name: stonebranch-ftpfilemonitortask-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:

**FTP File Monitor Details**

Agent: stonebranch-agent-01 Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials: Cluster Broadcast:

Credentials Variable:

Monitor Type: Exists

Wait until Satisfied:

Server Type: FTP Additional FTP Commands:

Transfer Mode: Passive

Remote Server: server 1 FTP Credentials:

FTP Credentials Variable:

Remote Filename: file 1

Use Regular Expression:

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 --

Update Launch Task View Parents Copy Delete Refresh Close


## FTP File Monitor Task Details Field Descriptions

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

Field Name	Description
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions tab</a> to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> it.
Hold Reason	Information about why the task will be put on hold when it starts.

<p>Virtual Resource Priority</p>	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
<p>Hold Resources on Failure</p>	<p>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.</p>
<p><b>File Monitor Details</b></p>	<p>This section contains assorted detailed information about the task.</p>
<p>Agent</p>	<p>Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a>.</p>
<p>Agent Variable</p>	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="361 735 1919 889" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>
<p>Agent Cluster</p>	<p>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 <a href="#">Agent Clusters</a> for more information.</p>
<p>Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="361 1196 1919 1377" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>



Cluster Broadcast	<p>Group of Agents, all of which will run this task (compare with Agent Cluster). You can specify a Cluster Broadcast in place 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.</p>
Credentials	<p><b>Credentials</b> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <b>Agent Credentials Required</b> 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.</p>
Credentials Variable	<p>Indication of whether the <b>Credentials</b> field is a reference field for selecting a specific <b>Credential</b> (unchecked) or a text field for specifying the <b>Credential</b> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <b>Variables and Functions</b>.</p> <div data-bbox="361 545 1919 699" style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b>                  When <b>updating multiple Tasks</b>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
Monitor Type	<p>Type of file event being monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Exists - Checks to see if the file exists.</li> <li>• Missing - Checks to see if the file does not exist.</li> </ul>
Wait until Satisfied	<p>If enabled, the task instance starts and continues to run until one of the following events occurs:</p> <ul style="list-style-type: none"> <li>• If <b>Monitor Type</b> = Exists and the specified file exists or appears, the task instance completes with a status of SUCCESS.</li> <li>• If <b>Monitor Type</b> = 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.</li> </ul> <p>If not enabled, the task instance:</p> <ol style="list-style-type: none"> <li>1. Starts.</li> <li>2. Checks for the existence of the file.</li> <li>3. Takes one of the following actions:                     <ul style="list-style-type: none"> <li>• If <b>Monitor Type</b> = Exists and the file exists, the task instance completes with a status of SUCCESS.</li> <li>• If <b>Monitor Type</b> = Exists and the file does not exist (or any part of the path is missing), the task instance completes with a status of FAILURE.</li> <li>• If <b>Monitor Type</b> = Missing and the file exists, the task instance completes with a status of FAILURE.</li> <li>• If <b>Monitor Type</b> = Missing and the file does not exist (or any part of the path is missing), the task instance completes with a status of SUCCESS.</li> </ul> </li> </ol>
Poll Interval (Seconds)	<p>If <b>Wait until Satisfied</b> is enabled: Frequency, in seconds, in which the FTP File Monitor will check to see if the file exists or is missing.</p>

Maximum Polls	If <a href="#">Wait until Satisfied</a> is enabled: Maximum number of times that the FTP File Monitor will check to see if the file exists or is missing.
Stable (Seconds)	<p>If <a href="#">Wait until Satisfied</a> is enabled: Period of time, in seconds, during which the file has not changed.</p> <p>For an FTP/SFTP 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:</p> <div data-bbox="363 354 1919 440" style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <pre style="font-family: monospace;">-rwxr-xr-x 1 owner group 12345 Jan 1 2016 somefile.txt</pre> </div> <p>The task will only find the size if it is in the 5th column (for example, 12345 in the example above).</p> <p>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 <a href="#">Additional FTP Commands</a> field is provided to insert those statements into the FTP script that the file monitor task executes.</p>
Server Type	<p>Type of FTP server.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• FTP</li> <li>• SFTP</li> <li>• FTPS</li> </ul>

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 an FTP 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 FTP 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 FTP 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 List Format Options field, the FTP 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 List Format Options 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.

<p>Transfer Mode</p>	<p>Transfer mode.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Active</li> <li>• Passive</li> <li>• Extended Passive</li> </ul>
<p>Remote Server</p>	<p>Name or IP address of the remote server. This machine may or may not be the same as the Universal Agent machine.</p> <p>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".</p>
<p>FTP Credentials</p>	<p>Login credentials that the Agent will use to access the FTP or SFTP server machine. If the FTP File Monitor server and Agent are running on the same machine, enter the same credentials as those you entered in the Credentials field.</p>
<p>FTP Credentials Variable</p>	<p>Indication of whether the <a href="#">FTP Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">FTP Credentials</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                  When <a href="#">updating multiple Tasks</a>, to change from using an FTP Credentials reference to using an FTP Credentials variable, you must change the <b>FTP Credentials Variable</b> field to <b>Yes</b> and specify the FTP Credentials variable in the <b>FTP Credentials Unresolved</b> field. Conversely, to change from using an FTP Credentials variable to using an FTP Credentials reference, you must change the <b>FTP Credentials Variable</b> field to <b>No</b> and specify the FTP Credentials reference in the <b>FTP Credentials</b> field.</p> </div>
<p>Remote Filename</p>	<p>Path and file name on the remote server.</p>
<p>Use Regular Expression</p>	<p>Enables the use of a <a href="#">regular expression</a> in the <a href="#">Remote Filename</a> field.</p>
<p>Job Card (z/OS only)</p>	<p>For z/OS, the job card information for the JCL statement. Example:</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <pre>//File TransferJOB01 JOB (File Transfer,001),FANNY,MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY=&amp;SYSUID,CLASS=A</pre> </div>
<p><b>Wait / Delay Options</b></p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>

<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <a href="#">Wait To Start</a> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <a href="#">Wait Time</a> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <a href="#">Wait To Start</a> = 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.</li> <li>• If <a href="#">Wait To Start</a> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <a href="#">Wait To Start</a> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>

Wait Duration In Seconds	If <a href="#">Wait To Start</a> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - - System Default - - Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>




<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>
<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>

Early Finish Nth Amount	If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.
Early Finish Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p>First Time Ran</p>	<p>System-supplied; date and time this task first ran.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.
<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.

<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.										
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>										
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.										
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.										
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.										
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.										
<b>Actions</b>	<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> <ul style="list-style-type: none"> <li>Task instance status</li> <li>Exit codes</li> <li>Late start</li> <li>Late finish</li> <li>Early finish</li> </ul> <p>Actions are:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #f2f2f2;"><b>Abort Action</b></td> <td>Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td style="background-color: #f2f2f2;"><b>Email Notification</b></td> <td>Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td style="background-color: #f2f2f2;"><b>Set Variable</b></td> <td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td style="background-color: #f2f2f2;"><b>SNMP Notification</b></td> <td>Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td style="background-color: #f2f2f2;"><b>System Operation</b></td> <td>Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .										
<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .										
<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .										
<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										

<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Mutually Exclusive</b>	Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.
<b>Instances</b>	Lists all instances of this task.
<b>Triggers</b>	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 <a href="#">Triggers</a> .
<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.
<b>Versions</b>	Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a> .

## Viewing an FTP File Monitor Task Instance

When an FTP 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 [FTP File Monitor Task Details](#) for that task
- [Activity Monitor](#)
- [Task Instances list](#)

## FTP File Monitor Task Instance Details

The following FTP File Monitor Task Instance Details contains information on the execution of the task shown in the [FTP File Monitor Task Details](#).

FTP File Monitor Instance Details: stonebranch-ftpfilemonitortask-01

FTP File Monitor Instance
Virtual Resources
Exclusive Requests
Output
Notes

**General**

Instance Name:  Reference Id:

Task:  Invoked By:

Task Description:

Member of Business Services:  Execution User:

Calendar:  Time Zone Preference:

Virtual Resource Priority:  Hold Resources on Failure:

**Status**

Status:  Exit Code:

Status Description:

Operational Memo:

Wait Until Time:

Queued Time:

Trigger Time:  Start Time:

Launch Time:  End Time:

Duration:

**FTP File Monitor Details**

Agent:  Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials:  Credentials Variable:

Monitor Type:

Wait until Satisfied:  Poll Interval (Seconds):

Maximum Polls:

Stable (Seconds):

Server Type:  Additional FTP Commands:

Transfer Mode:

Remote Server:  FTP Credentials:

FTP Credentials Variable:

Remote Filename:

Use Regular Expression:  Move:

Job Card (z/OS only):  z/OS ID (z/OS only):

**Wait/Delay Options**

Wait To Start:  Wait Duration In Seconds:

Delay On Start:  Delay Duration In Seconds:

**Critical Path Options**

CP Duration:  CP Duration Unit:

**Statistics**

User Estimated End Time:  Average Estimated End Time:

Shortest Estimated End Time:  Longest Estimated End Time:


## FTP File Monitor Task Instance Details Field Descriptions



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

Field Name	Description
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.



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	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
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.
<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.
<b>File Monitor Details</b>	This section contains assorted detailed information about the task instance.
Agent	Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a> .
Agent Variable	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>

Agent Cluster	<p>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 <a href="#">Agent Clusters</a> for more information.</p>
Agent Cluster Variable	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="361 402 1919 581" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>
Cluster Broadcast	<p>Group of Agents, all of which will run this task (compare with Agent Cluster). You can specify a Cluster Broadcast in place 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.</p>
Credentials	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>
Credentials Variable	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="361 1029 1919 1187" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
Monitor Type	<p>Type of file event being monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Exists - Checks to see if the file exists.</li> <li>• Missing - Checks to see if the file does not exist.</li> </ul>

Wait until Satisfied	<p>If enabled, the task instance starts and continues to run until one of the following events occurs:</p> <ul style="list-style-type: none"> <li>• If <b>Monitor Type</b> = Exists and the specified file exists or appears, the task instance completes with a status of SUCCESS.</li> <li>• If <b>Monitor Type</b> = 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.</li> </ul> <p>If not enabled, the task instance:</p> <ol style="list-style-type: none"> <li>1. Starts.</li> <li>2. Checks for the existence of the file.</li> <li>3. Takes one of the following actions:                     <ul style="list-style-type: none"> <li>• If <b>Monitor Type</b> = Exists and the file exists, the task instance completes with a status of SUCCESS.</li> <li>• If <b>Monitor Type</b> = Exists and the file does not exist (or any part of the path is missing), the task instance completes with a status of FAILURE.</li> <li>• If <b>Monitor Type</b> = Missing and the file exists, the task instance completes with a status of FAILURE.</li> <li>• If <b>Monitor Type</b> = Missing and the file does not exist (or any part of the path is missing), the task instance completes with a status of SUCCESS.</li> </ul> </li> </ol>
Poll Interval (Seconds)	If <b>Wait until Satisfied</b> is enabled: Frequency, in seconds, in which the FTP File Monitor will check to see if the file exists or is missing.
Maximum Polls	If <b>Wait until Satisfied</b> is enabled: Maximum number of times that the FTP File Monitor will check to see if the file exists or is missing.
Stable (Seconds)	<p>If <b>Wait until Satisfied</b> is enabled: Period of time, in seconds, during which the file has not changed.</p> <p>For an FTP/SFTP 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:</p> <pre style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;">-rwxr-xr-x 1 owner group 12345 Jan 1 2016 somefile.txt</pre> <p>The task will only find the size if it is in the 5th column (for example, 12345 in the example above).</p> <p>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 <b>Additional FTP Commands</b> field is provided to insert those statements into the FTP script that the File Monitor task executes.</p> <p>By default, if a value for <b>Stable (Seconds)</b> is specified, an FTP File Monitor task instance will verify that the Agent version is 5.1.0.16 or higher. If the Agent version is 5.1.0.15 or lower, the task instance will not run, the status will be set to <b>Start Failure</b>, and the following message will be logged: Stable (Seconds) option only supported on Agent 5.1.0.16 or higher.</p>
Server Type	Type of FTP server. <p>Options:</p> <ul style="list-style-type: none"> <li>• FTP</li> <li>• SFTP</li> <li>• FTPS</li> </ul>

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 an FTP 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 FTP 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 FTP 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 List Format Options field, the FTP 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 List Format Options 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: <ul style="list-style-type: none"> <li>• Active</li> <li>• Passive</li> <li>• Extended Passive</li> </ul>
Remote Server	Name or IP address of the File Transfer 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 FTP 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 <a href="#">FTP Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">FTP Credentials</a> as a variable (checked). Use the format: <code>\${variable name}</code> . The variable must be a supported type as described in <a href="#">Variables and Functions</a> .  <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an FTP Credentials reference to using an FTP Credentials variable, you must change the <b>FTP Credentials Variable</b> field to <b>Yes</b> and specify the FTP Credentials variable in the <b>FTP Credentials Unresolved</b> field. Conversely, to change from using an FTP Credentials variable to using an FTP Credentials reference, you must change the <b>FTP Credentials Variable</b> field to <b>No</b> and specify the FTP Credentials reference in the <b>FTP Credentials</b> field.</p> </div>
Remote Filename	Path and file name on the remote server.
Use Regular Expression	Enables the use of a <a href="#">regular expression</a> in the <a href="#">Remote Filename</a> field.
Job Card (z/OS only)	For z/OS, the job card information for the JCL statement. Example: <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <pre>//File TransferJOB01 JOB (File Transfer,001),FANNY,MSGCLASS=X,MSGLEVEL=(1,1),NOTIFY=&amp;SYSUID,CLASS=A</pre> </div>
z/OS ID (z/OS only)	z/OS execID, used internally by the z/OS Agent to identify each z/OS task.
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.

<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <a href="#">Wait To Start</a> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <a href="#">Wait Time</a> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <a href="#">Wait To Start</a> = 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.</li> <li>• If <a href="#">Wait To Start</a> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <a href="#">Wait To Start</a> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>

Wait Duration In Seconds	If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <b>Delay On Start</b> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <b>Delay On Start</b> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <b>Wait To Start</b> and <b>Delay On Start</b> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - - System Default - - Apply the <b>Wait To Start</b> and <b>Delay On Start</b> specifications as defined by the <b>System Default Wait/Delay Workflow Only</b> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <b>Wait To Start</b> and <b>Delay On Start</b> specifications only if the task is in a Workflow.</li> <li>• No Apply the <b>Wait To Start</b> and <b>Delay On Start</b> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	<p>Specifies the amount of time to wait before starting a task after it has been launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Wait Time	If <b>Wait To Start</b> = Time; Number of hours and minutes to wait before starting the task.



Wait Duration	If <a href="#">Wait To Start</a> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If <a href="#">Wait To Start</a> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Finished Early</p>	<p>System-supplied; this field is flagged if the task finished earlier than the time specified in the <a href="#">Early Finish</a> fields.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>

<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>

Before Date	If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.
Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.

<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Retrieve Output</b>	See <a href="#">Retrieving Output</a> .
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Output</b>	Displays output generated from the process, if any, based on specifications provided by the user in the Monitor Type fields in the task Details. Output also can be obtained by clicking the <a href="#">Retrieve Output</a> button.
<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.

## Running an FTP File Monitor Task



You can run an FTP File Monitor task:

- Manually, by clicking the [Launch Task](#) or [Launch Task with Variables](#) button in the FTP File Monitor Tasks list or FTP 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 an FTP File Monitor task to pass data where appropriate:

- [Task and Task Instance Variables](#)
- [FTP 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.

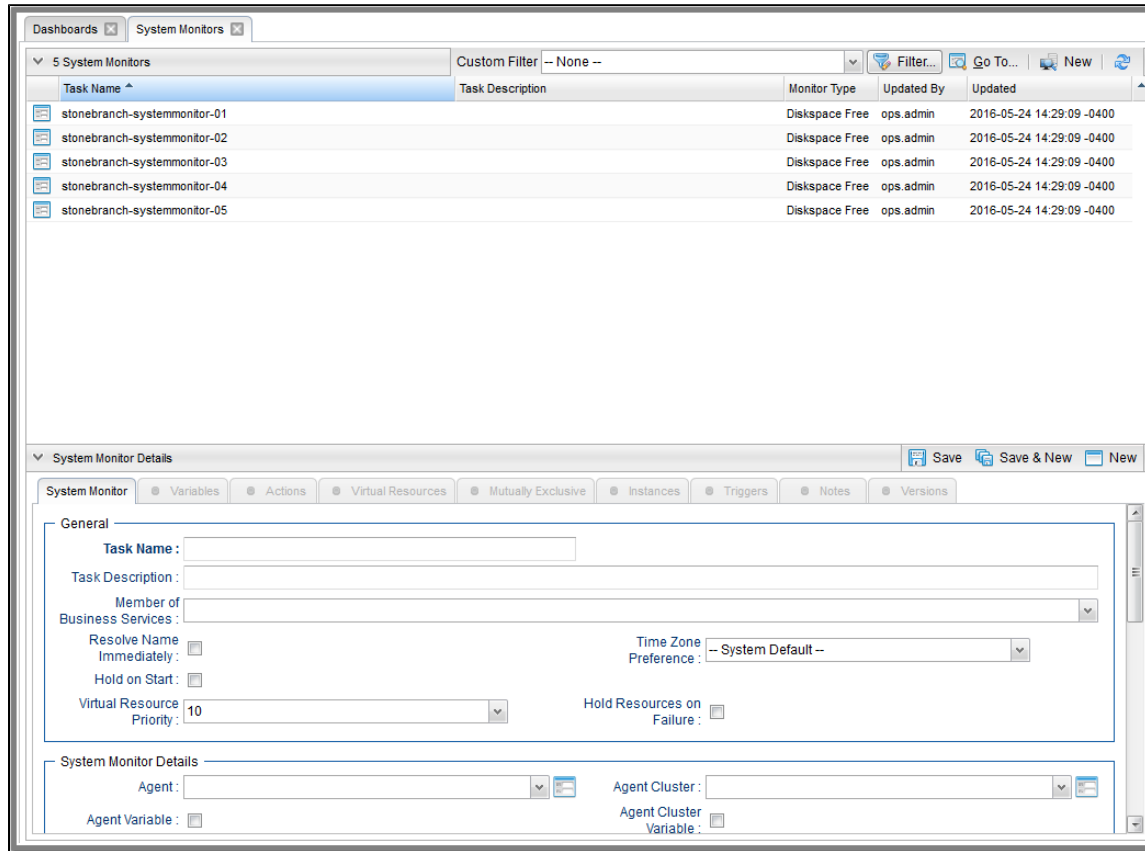
### Built-In Variables

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.



**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.

**System Monitor Details: stonebranch-systemmonitor-01**

Update Launch Task View Parents Copy Delete Refresh Close

System Monitor Variables Actions Virtual Resources Mutually Exclusive Instances Triggers Notes Versions

**General**

Task Name: stonebranch-systemmonitor-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:

**System Monitor Details**

Agent: DVZOS111 - NAHZOS52 Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials: Credentials Variable:

Cluster Broadcast:

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: Seconds Wait Duration In Seconds: 5

Delay On Start: Seconds Delay Duration In Seconds: 5

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

## 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
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions tab</a> to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> 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) - 20 (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.
<b>System Monitor Details</b>	This section contains assorted detailed information about the task.
Agent	Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a> .
Agent Variable	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="310 570 1919 727" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>
Agent Cluster	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 <a href="#">Agent Clusters</a> for more information.
Agent Cluster Variable	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="310 1032 1919 1190" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>
Cluster Broadcast	Group of Agents, all of which will run this task (compare with Agent Cluster). You can specify a Cluster Broadcast in place 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.

<p>Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>
<p>Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="310 423 1919 581" style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>Monitor Type</p>	<p>Type of system status to monitor for.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Diskspace Free</li> </ul>
<p>Condition</p>	<p>Specifies whether you want to check for free disk space greater than or less than the amount specified in the <a href="#">Resource Available</a> field.</p>
<p>Resource Available</p>	<p>Used in conjunction with the <a href="#">By Scale</a> 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 disk space, select Greater Than in the <a href="#">Condition</a> field, enter 1 in the Resource Available field, and select GB in the <a href="#">By Scale</a> field.</p>
<p>By Scale</p>	<p>Scale of the number you entered in the <a href="#">Resource Available</a> field. Options: KB (kilobyte), MB (megabyte), GB (gigabyte).</p>
<p>Mount Point or Drive</p>	<p>Use this field to limit the check to a specific mount point or drive, such as drive C: for Windows.</p>
<p><b>Wait / Delay Options</b></p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>



<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>

Wait Duration In Seconds	If <a href="#">Wait To Start</a> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - - System Default - - Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>

<p>Late Start Time</p>	<p>If <b>Late Start Type</b> = Time; Time after which the task <b>start time</b> is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Start Day Constraint</p>	<p>If <b>Late Start Type</b> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <b>Late Start Day Constraint</b> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <b>Late Start Type</b> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <b>Hold on Start</b> 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.</p>

Late Finish	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>
Late Finish Type	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Late Finish Time	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
Late Finish Day Constraint	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Late Finish Nth Amount	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>


<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>
<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>

Early Finish Nth Amount	If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.
Early Finish Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.  Options: <ul style="list-style-type: none"><li>• Seconds</li><li>• Minutes</li><li>• Hours</li></ul> Default is Minutes.
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p><b>Execution Restriction</b></p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p><b>Restriction Period</b></p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p><b>Before Date</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p><b>Before Time</b></p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p><b>After Date</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p><b>After Time</b></p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p><b>Date List</b></p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.



<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.

<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="275 451 1961 786"> <tr> <td data-bbox="275 451 472 500"><b>Abort Action</b></td> <td data-bbox="472 451 1961 500">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="275 500 472 573"><b>Email Notification</b></td> <td data-bbox="472 500 1961 573">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="275 573 472 646"><b>Set Variable</b></td> <td data-bbox="472 573 1961 646">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="275 646 472 719"><b>SNMP Notification</b></td> <td data-bbox="472 646 1961 719">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="275 719 472 786"><b>System Operation</b></td> <td data-bbox="472 719 1961 786">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .										
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<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<p><b>Virtual Resources</b></p>	<p>Lists all <a href="#">Virtual Resources</a> to which this task is assigned.</p>										
<p><b>Mutually Exclusive</b></p>	<p>Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.</p>										
<p><b>Instances</b></p>	<p>Lists all instances of this Workflow.</p>										
<p><b>Triggers</b></p>	<p>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: &lt;current task name&gt;#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see <a href="#">Triggers</a>.</p>										
<p><b>Notes</b></p>	<p>Lists all <a href="#">notes</a> associated with this record.</p>										
<p><b>Versions</b></p>	<p>Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a>.</p>										

## 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-systemmonitor-01
Update Re-run View Parent Delete Refresh Close

System Monitor Task Instance
Virtual Resources
Exclusive Requests
Notes

**General**

Instance Name:  Reference Id:

Task:  Invoked By:

Task Description:

Member of Business Services:  Execution User:

Calendar:  Time Zone Preference:

Virtual Resource Priority:  Hold Resources on Failure:

**Status**

Status:  Exit Code:

Status Description:

Operational Memo:

Wait Until Time:

Queued Time:

Trigger Time:

Start Time:

Launch Time:  End Time:

Actual Available:  By Scale:

**System Monitor Details**

Agent:  Agent Cluster:

Agent Variable:

Credentials:  Agent Cluster Variable:

Credentials Variable:

Monitor Type:

Condition:

Resource Available:  By Scale:

Mount Point or Drive:

**Wait/Delay Options**

Wait To Start:  Wait Duration In Seconds:

Delay On Start:  Delay Duration In Seconds:

**Critical Path Options**

CP Duration:  CP Duration Unit:

**Statistics**

User Estimated End Time:  Average Estimated End Time:

Shortest Estimated End Time:  Longest Estimated End Time:


Update Re-run View Parent Delete Refresh Close



## 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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Trigger: (Trigger Name)</b> Instance was launched by the named trigger.</li> <li>• <b>Workflow: (Workflow Name)</b> Instance was launched by the named workflow.</li> <li>• <b>Manually Launched</b> Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
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	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	<p>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.</p>
<b>Status</b>	<p>This section contains information about the current status of the task instance.</p>
Status	<p>System-supplied; see <a href="#">Task Instance Statuses</a>.</p>
Exit Code	<p>System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).</p>
Status Description	<p>System-supplied; additional information, if any, about the status of the task instance.</p>
Operational Memo	<p>User-defined operational memo.</p>
Evaluation Time	<p>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.)</p>
Critical	<p>Indicates that this task is in the Critical Path of a workflow.</p>
Wait Until Time	<p>Amount of time calculated to wait before the task was started, based on <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> times.</p>

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	<p>Scale of the number show in the <a href="#">Actual Available</a> field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• KB (kilobyte)</li> <li>• MB (megabyte)</li> <li>• GB (gigabyte)</li> </ul>
<b>System Monitor Details</b>	This section contains assorted detailed information about the task instance.
Agent	Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a> .
Agent Variable	<p>Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>

<p>Agent Cluster</p>	<p>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 <a href="#">Agent Clusters</a> for more information.</p>
<p>Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="310 402 1919 558" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>
<p>Cluster Broadcast</p>	<p>Group of Agents, all of which will run this task (compare with Agent Cluster). You can specify a Cluster Broadcast in place 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.</p>
<p>Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>Required if the <a href="#">Agent Credentials Required</a> 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.</p>
<p>Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="310 1005 1919 1161" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>Monitor Type</p>	<p>Type of file event being monitored for.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Create - Wait for the creation of one or more files.</li> <li>• Delete - Wait for the deletion of one or more files.</li> <li>• Change - Monitor for a change in one or more files. <b>[NOTE: not supported for z/OS.]</b></li> <li>• Exists - Check to see if one or more files already exist.</li> <li>• Missing - Check to see if one or more files do not exist.</li> </ul>



Condition	Specifies whether you want to check for free disk space greater than or less than the amount specified in the <a href="#">Resource Available</a> field.
Resource Available	Used in conjunction with the <a href="#">By Scale</a> 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 <a href="#">Condition</a> field, enter 1 in the Resource Available field, and select GB in the <a href="#">By Scale</a> field.
By Scale	Scale of the number you entered in the <a href="#">Resource Available</a> 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.
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Wait Time	If <a href="#">Wait To Start</a> = Time or Relative Time; Number of hours and minutes to wait before starting the task.

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.

<p>Early Finish Day Constraint</p>	<p>If <b>Early Finish Type</b> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <b>Early Finish Day Constraint</b> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <b>Early Finish Type</b> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <b>CP Duration Unit</b> 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.</p>

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>



Before Date	If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.
Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
Shortest Estimated End Time	System-supplied; shortest 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.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.

<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Notes</b>	Lists all <a href="#">notes</a> 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
  - Monitoring for Current Value of a Variable and a Change in the Value of a Variable
- Built-In Variables
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- Viewing a Variable Monitor Task Instance
  - Variable Monitor Task Instance Details
  - Variable Monitor Task Instance Details Field Descriptions
- Running a Variable Monitor Task
- Monitoring Task Execution

### 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 **Failed** 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 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**.

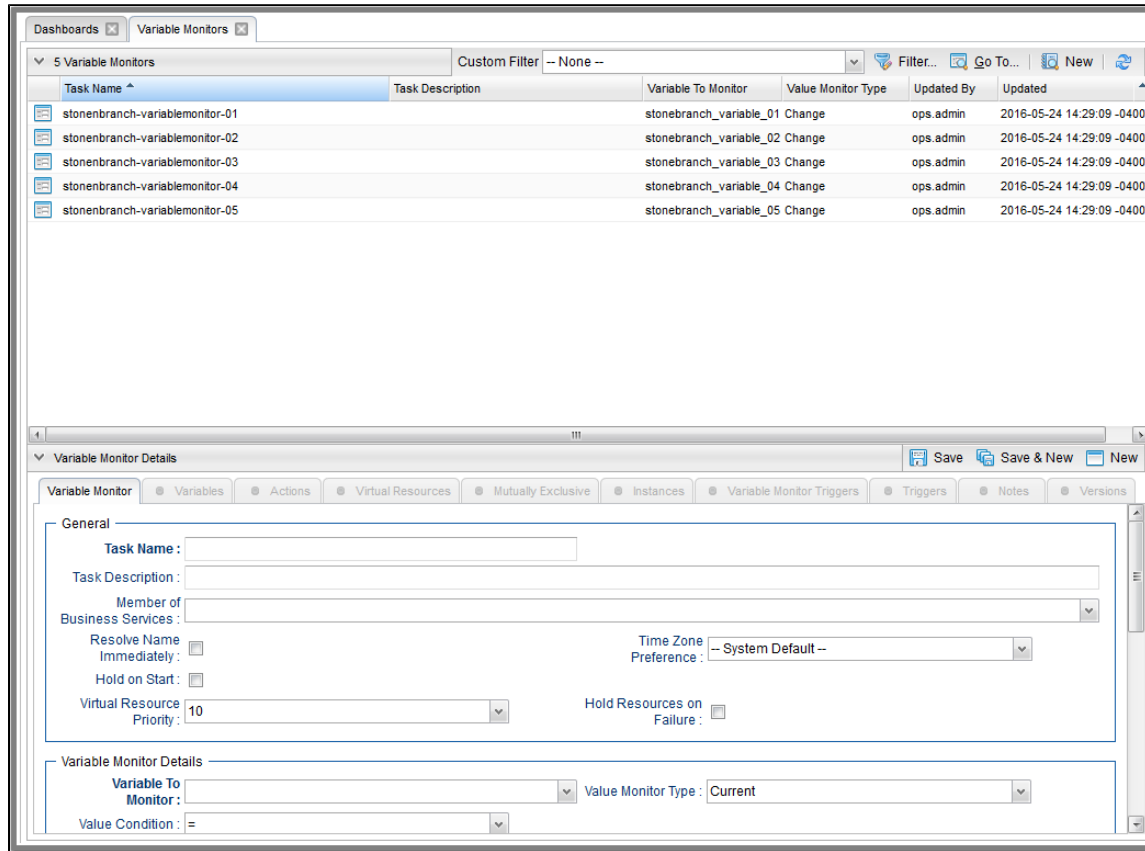
## Built-In Variables

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.



**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.

The screenshot displays the 'Variable Monitor Details' window for a task named 'stonbranch-variablemonitor-01'. The window has a title bar with standard OS controls and a menu bar with options: Update, Launch Task, View Parents, Copy, Delete, Refresh, and Close. Below the menu bar is a tabbed interface with the following tabs: Variable Monitor, Variables, Actions, Virtual Resources, Mutually Exclusive, Instances, Variable Monitor Triggers (selected), Triggers, and Notes. The main content area is divided into several sections:

- General:** Includes fields for Task Name (stonbranch-variablemonitor-01), Version (1), Task Description, Member of Business Services, Resolve Name Immediately (checkbox), Hold on Start (checkbox), Virtual Resource Priority (10), Time Zone Preference (-- System Default --), and Hold Resources on Failure (checkbox).
- Variable Monitor Details:** Includes Variable To Monitor (stonebranch\_variable\_01), Value Monitor Type (Change), Value Condition (regex), Value (empty text area), and Time Limit (empty field) with Time Limit Unit (Hours).
- Wait/Delay Options:** Includes Wait To Start (-- None --), Delay On Start (-- None --), and Workflow Only (-- System Default --).
- Time Options:** Includes Late Start, Late Finish, and Early Finish (all checkboxes), and User Estimated Duration (Day, Hour, Min, Sec dropdowns).
- Critical Path Options:** Includes CP Duration (empty field) and CP Duration Unit (Minutes).
- Workflow Execution Options:** Includes Execution Restriction (-- None --).

At the bottom of the dialog, there is a secondary set of buttons: Update, Launch Task, View Parents, Copy, Delete, Refresh, and Close.

## 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
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions</a> tab to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> 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) - 20 (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.
<b>Variable Monitor Details</b>	This section contains assorted detailed information about the task.
Variable to Monitor	Name of the variable to monitor. <a href="#">Variables</a> are supported.
Value Monitor Type	Type of monitoring to be done on the Variable value. Options: <ul style="list-style-type: none"> <li>• Current (monitor the current value)</li> <li>• Change (monitor for a change in value)</li> <li>• Current/Change (monitor for both the current value and a change in value)</li> </ul>
Value Condition	Condition for the value of the variable being monitored. Options: <ul style="list-style-type: none"> <li>• – None –</li> <li>• =</li> <li>• !=</li> <li>• &gt;</li> <li>• &gt;=</li> <li>• &lt;</li> <li>• &lt;=</li> <li>• regex</li> <li>• undefined</li> </ul>
Value	If <a href="#">Value Condition</a> = =, !=, >, >=, <, <=, or regex; Value of the variable being monitored.
Time Limit	If <a href="#">Value Monitor Type</a> = Change or Current/Change; Used for Variable Monitor tasks not associated with a trigger; Amount of time (in units specified by <a href="#">Time Limit Unit</a> ) 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.
Time Limit Unit	If <a href="#">Value Monitor Type</a> = Change or Current/Change; Unit of time to use for <a href="#">Time Limit</a> . Options: <ul style="list-style-type: none"> <li>• Minutes</li> <li>• Hours (default)</li> <li>• Days</li> </ul>

<p><b>Wait / Delay Options</b></p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>

Wait Duration	If <a href="#">Wait To Start</a> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If <a href="#">Wait To Start</a> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - - System Default - - Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.

<p>Late Start Type</p>	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
<p>Late Start Time</p>	<p>If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>

<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>

<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>


<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>
<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p>User Estimated Duration</p>	<p>Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>



<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>

Restriction Period	<p>If <b>Execution Restriction</b> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <b>Before Date</b> value.</li> <li>• After Restriction is valid if the date is after the <b>After Date</b> value.</li> <li>• Span Restriction is valid if the date is before the <b>Before Date</b> value and after <b>After Date</b> value.</li> <li>• On Restriction is valid if the date is one of the <b>Date List</b> values.</li> </ul>
Before Date	If <b>Restriction Period</b> = Before or Span; Date before which the restriction is valid.
Before Time	If <b>Restriction Period</b> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <b>Restriction Period</b> = After or Span; Date after which the restriction is valid.
After Time	If <b>Restriction Period</b> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <b>Restriction Period</b> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.
<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.

<p><b>Delete</b></p>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>										
<p><b>Refresh</b></p>	<p>Refreshes any dynamic data displayed in the Details.</p>										
<p><b>Close</b></p>	<p>For pop-up view only; closes the pop-up view of this task.</p>										
<p><b>Tabs</b></p>	<p>This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.</p>										
<p><b>Variables</b></p>	<p>Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.</p>										
<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>Task instance status</li> <li>Exit codes</li> <li>Late start</li> <li>Late finish</li> <li>Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="273 1003 1959 1339"> <tr> <td data-bbox="273 1003 472 1052"><b>Abort Action</b></td> <td data-bbox="472 1003 1959 1052">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="273 1052 472 1125"><b>Email Notification</b></td> <td data-bbox="472 1052 1959 1125">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="273 1125 472 1198"><b>Set Variable</b></td> <td data-bbox="472 1125 1959 1198">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="273 1198 472 1271"><b>SNMP Notification</b></td> <td data-bbox="472 1198 1959 1271">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="273 1271 472 1339"><b>System Operation</b></td> <td data-bbox="472 1271 1959 1339">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .										
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<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<p><b>Virtual Resources</b></p>	<p>Lists all <a href="#">Virtual Resources</a> to which this task is assigned.</p>										

<b>Mutually Exclusive</b>	Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.
<b>Instances</b>	Lists all instances of this Workflow.
<b>Variable Monitor Triggers</b>	Lists all Variable Monitor triggers that reference this task in the <a href="#">Variable Monitor</a> 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 <a href="#">Triggers</a> .
<b>Triggers</b>	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 <a href="#">Triggers</a> .
<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.
<b>Versions</b>	Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a> .

## 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 Field Descriptions

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

Field Name	Description
<b>General</b>	This section contains general information about the task instance.

Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
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	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>

Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	<p>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.</p>
<b>Status</b>	<p>This section contains information about the current status of the task instance.</p>
Status	<p>System-supplied; see <a href="#">Task Instance Statuses</a>.</p>
Status Description	<p>System-supplied; additional information, if any, about the status of the task instance.</p>
Operational Memo	<p>User-defined operational memo.</p>
Evaluation Time	<p>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.)</p>
Critical	<p>Indicates that this task is in the Critical Path of a workflow.</p>
Wait Until Time	<p>Amount of time calculated to wait before the task was started, based on <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> times.</p>
Queued Time	<p>System-supplied; Date and time the task was queued for processing.</p>
Trigger Time	<p>System-supplied; Date and time the task instance was triggered.</p>
Launch Time	<p>System-supplied; Date and time the task instance was launched.</p>
Start Time	<p>System-supplied; Date and time the task instance started.</p>



End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
<b>Variable Monitor Details</b>	This section contains assorted detailed information about the task instance.
Variable to Monitor	Name of the variable to monitor. <a href="#">Variables</a> are supported.
Value Monitor Type	Variable value(s) to monitor for. Options: <ul style="list-style-type: none"> <li>• Current</li> <li>• Change</li> <li>• Current/Change</li> </ul>
Value Condition	Condition for the value of the variable being monitored. Options: <ul style="list-style-type: none"> <li>• – None – (only if <a href="#">Value Monitor Type</a> = Change)</li> <li>• =</li> <li>• !=</li> <li>• &gt;</li> <li>• &gt;=</li> <li>• &lt;</li> <li>• &lt;=</li> <li>• regex</li> <li>• undefined</li> </ul>
Value	If <a href="#">Value Condition</a> = =, !=, >, >=, <, <=, or regex; Value of the variable being monitored.
Time Limit	If <a href="#">Value Monitor Type</a> = Change or Current/Change; Used for Variable Monitor tasks not associated with a trigger; Amount of time (in units specified by <a href="#">Time Limit Unit</a> ) 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.
Time Limit Unit	If <a href="#">Value Monitor Type</a> = Change or Current/Change; Unit of time to use for <a href="#">Time Limit</a> . Options: <ul style="list-style-type: none"> <li>• Minutes</li> <li>• Hours (default)</li> <li>• Days</li> </ul>
<b>Wait / Delay Options</b>	This section contains specifications for waiting to start and/or delaying on start the task.

<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>

Wait Duration In Seconds	If <a href="#">Wait To Start</a> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

<p>Finished Late</p>	<p>System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>

<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Finished Early</p>	<p>System-supplied; this field is flagged if the task finished earlier than the time specified in the <a href="#">Early Finish</a> fields.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>

<p>Early Finish Day Constraint</p>	<p>If <b>Early Finish Type</b> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <b>Early Finish Day Constraint</b> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <b>Early Finish Type</b> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <b>CP Duration Unit</b> 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.</p>

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>



Before Date	If <b>Restriction Period</b> = Before or Span; Date before which the restriction is valid.
Before Time	If <b>Restriction Period</b> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <b>Restriction Period</b> = After or Span; Date after which the restriction is valid.
After Time	If <b>Restriction Period</b> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <b>Restriction Period</b> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <b>User Estimated Duration</b> 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.
Shortest Estimated End Time	System-supplied; shortest 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.
Longest Estimated End Time	System-supplied; longest 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 <b>critical path duration</b> .
<b>Metadata</b>	This section contains <b>Metadata</b> 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.

<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Notes</b>	Lists all <a href="#">notes</a> 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.

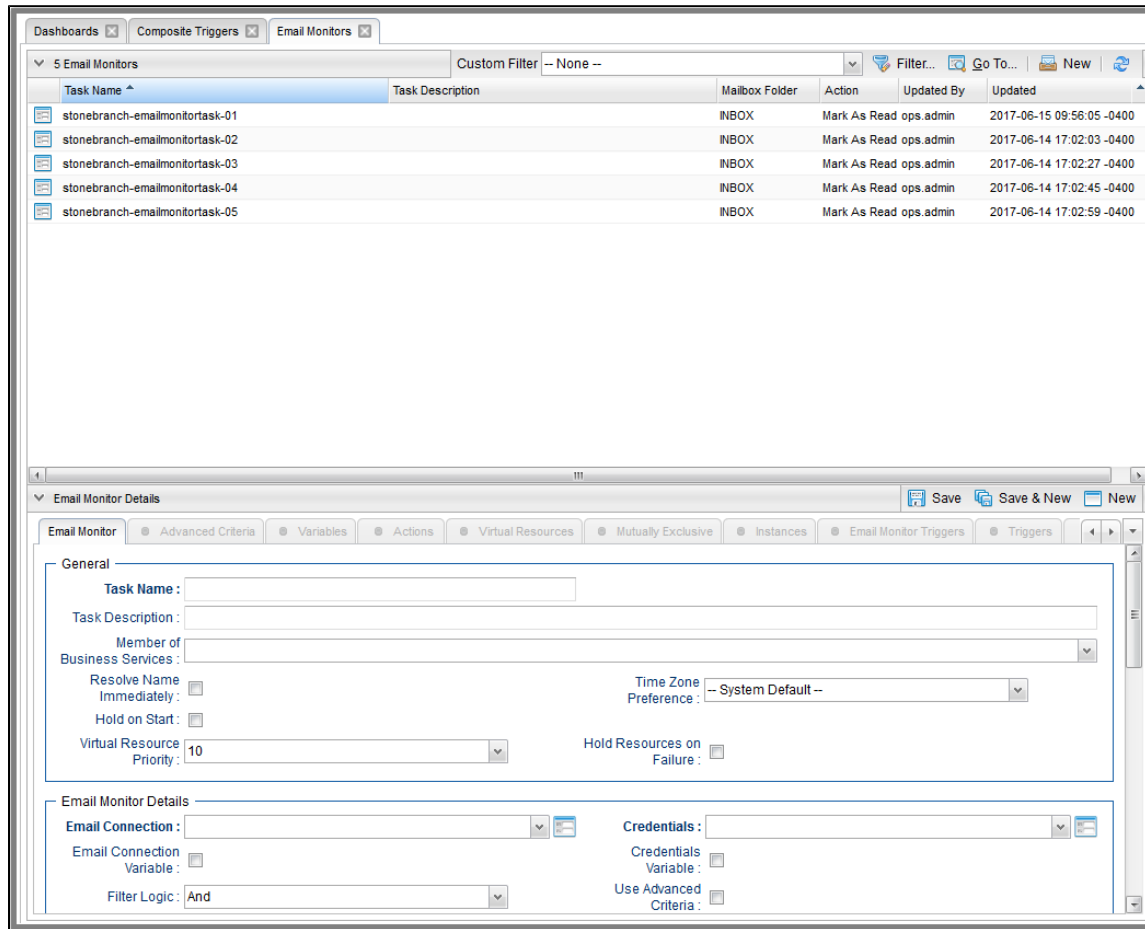
### Built-In Variables

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.



**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.



**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:  Version:

Task Description:

Member of Business Services:

Resolve Name Immediately:  Time Zone Preference:

Hold on Start:

Virtual Resource Priority:  Hold Resources on Failure:

**Email Monitor Details**

Email Connection:  Credentials:

Email Connection Variable:  Credentials Variable:

Filter Logic:  Use Advanced Criteria:

Sent Restriction:

Received Restriction:

Include Read Mail:

Mailbox Folder:

Action:

Body Variables:

Time Limit:  Time Limit Unit:

Email Content Processing:

**Email Monitor Criteria**

From Filter:

To Filter:

Cc Filter:

Subject Filter:

Body Filter:

Case Sensitive:

**Wait/Delay Options**

Wait To Start:

Delay On Start:

Workflow Only:

**Time Options**

Late Start:

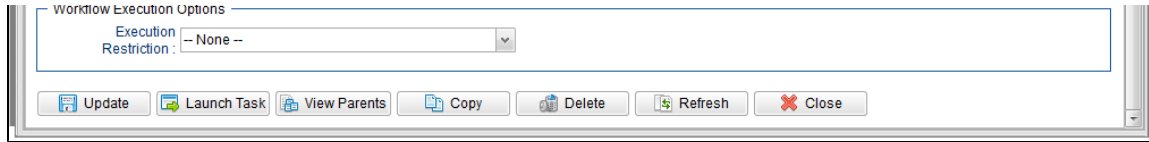
Late Finish:

Early Finish:

User Estimated Duration:

**Critical Path Options**

CP Duration:  CP Duration Unit:





## 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
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions tab</a> to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> 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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b> . The task runs when the user <a href="#">releases</a> 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) - 20 (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.
<b>Email Monitor Details</b>	This section contains assorted detailed information about the task.
Email Connection	Required; Name of an incoming <a href="#">Email Connection</a> (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 <a href="#">Email Connection</a> field is a reference field for selecting a specific <a href="#">Email Connection</a> (unchecked) or a text field for specifying the <a href="#">Email Connection</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a> .  <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b> When <a href="#">updating multiple Tasks</a>, to change from using an Email Connection reference to using an Email Connection variable, you must change the <b>Email Connection Variable</b> field to <b>Yes</b> and specify the Email Connection variable in the <b>Email Connection Unresolved</b> field. Conversely, to change from using an Email Connection variable to using an Email Connection reference, you must change the <b>Email Connection Variable</b> field to <b>No</b> and specify the Email Connection reference in the <b>Email Connection</b> field.</p> </div>
Credentials	<a href="#">Credentials</a> to be used to connect to the Email server.

<p>Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>Filter Logic</p>	<p>Logic to apply when combining filters. If <a href="#">Use Advanced Criteria</a> is enabled, it is the logic to apply when combining <a href="#">Advanced Criteria</a> records.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• And (default)</li> <li>• Or</li> </ul>
<p>Use Advanced Criteria</p>	<p>If enabled, use advanced criteria specified under the <a href="#">Advanced Criteria</a> tab for the Email Monitor filter criteria.</p>
<p>Sent Restriction</p>	<p>Type of Sent restriction to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - - None - - (default)</li> <li>• On</li> <li>• Before</li> <li>• After</li> <li>• Span</li> </ul>
<p>Sent On</p>	<p>If <a href="#">Sent Restriction</a> = On; Sent On restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Date (default)</li> <li>• Today</li> <li>• Yesterday</li> <li>• Tomorrow</li> </ul>
<p>Sent On Date</p>	<p>If <a href="#">Sent On</a> = Date; Specific date for the Sent On restriction value.</p>


Sent Before	<p>If <b>Sent Restriction</b> = Before; Sent Before restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Date (default)</li> <li>• Today</li> <li>• Yesterday</li> <li>• Tomorrow</li> <li>• Launch Time</li> <li>• Relative</li> </ul>
Sent Before Date	<p>If <b>Sent Before</b> = Date; Specific date for the Sent Before restriction value.</p>
Sent Before Offset	<p>If <b>Sent Before</b> = Relative; Offset, relative to the last launch time, for the Sent Before restriction value. Format: [+/-]hh:mm</p>
Sent After	<p>If <b>Sent Restriction</b> = After; Sent After restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Date (default)</li> <li>• Today</li> <li>• Yesterday</li> <li>• Tomorrow</li> <li>• Launch Time</li> <li>• Relative</li> </ul>
Sent After Date	<p>If <b>Sent After</b> = Date; Specific date for the Sent After restriction value.</p>
Sent After Offset	<p>If <b>Sent After</b> = Relative; Offset, relative to the last launch time, for the Sent After restriction value.</p>
Received Restriction	<p>Type of Received restriction to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - - None - - (default)</li> <li>• On</li> <li>• Before</li> <li>• After</li> <li>• Span</li> </ul>

Received On	<p>If <b>Received Restriction</b> = On; Received On restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Date (default)</li> <li>• Today</li> <li>• Yesterday</li> <li>• Tomorrow</li> </ul>
Received On Date	<p>If <b>Received On</b> = Date; Specific date for the Received On restriction value.</p>
Received Before	<p>If <b>Received Restriction</b> = Before; Received Before restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Date (default)</li> <li>• Today</li> <li>• Yesterday</li> <li>• Tomorrow</li> <li>• Relative</li> </ul>
Received Before Date	<p>If <b>Received Before</b> = Date; Specific date for the Received Before restriction value.</p>
Received Before Offset	<p>If <b>Received Before</b> = Relative; Offset, relative to the last launch time, for the Received Before restriction value. Format: [ +/- ]hh:mm</p>
Received After	<p>If <b>Received Restriction</b> = After; Received After restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Date (default)</li> <li>• Today</li> <li>• Yesterday</li> <li>• Tomorrow</li> <li>• Relative</li> </ul>
Received After Date	<p>If <b>Received After</b> = Date; Specific date for the Received After restriction value.</p>
Received After Offset	<p>If <b>Received After</b> = Relative; Offset, relative to the last launch time, for the Received After restriction value.</p>

<p>Include Read Mail</p>	<p>If enabled, specifies that mail marked as read should be included by the filter.</p>
<p>Mailbox Folder</p>	<p>Mailbox folder to monitor on the server specified in the selected Email Connection.</p>
<p>Action</p>	<p>Action to take on mail that matches the filter.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Mark As Read (default)</li> <li>• Delete</li> <li>• Delete/Mark As Read</li> <li>• Move</li> <li>• Move/Mark As Read</li> </ul>
<p>Move To Trash</p>	<p>If <a href="#">Action</a> = Delete or Delete/Mark As Read; If enabled, mail matching the filter will be moved to the trash folder specified in the <a href="#">Email Connection</a>.</p>
<p>Mailbox Folder Destination</p>	<p>If <a href="#">Action</a> = Move or Move/Mark As Read; Mailbox folder to move matched mail into.</p>
<p>Body Variables</p>	<p>Specifies whether to parse the Email body for name/value pairs to create variables from.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - - None - - No processing of the Email body will occur.</li> <li>• 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.</li> <li>• Within Default Markers Marker begin and end values are defined by the <a href="#">Email Body Default Begin Marker</a> and <a href="#">Email Body Default End Marker</a> Universal Controller system properties.</li> <li>• Within Custom Markers Marker begin and end values are defined in the <a href="#">Begin Marker</a> and <a href="#">End Marker</a> fields.</li> </ul> <p>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.</p>
<p>Begin Marker</p>	<p>If <a href="#">Body Variables</a> is Within Customer Markers; Begin marker for the Body Variables.</p>
<p>End Marker</p>	<p>If <a href="#">Body Variables</a> is Within Customer Markers; End marker for the Body Variables.</p>

Time Limit	Used for Email Monitor tasks not associated with a trigger; Amount of time (in units specified by <a href="#">Time Limit Unit</a> ) 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	<p>Unit of time to use for <a href="#">Time Limit</a>.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Minutes</li> <li>• Hours (default)</li> <li>• Days</li> </ul>
Email Content Processing	<p>Method for determining the success or failure of this task based on Email content.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - - None - -</li> <li>• Success Body Contains</li> <li>• Failure Body Contains</li> <li>• Success Body Does Not Contain</li> <li>• Failure Body Does Not Contain</li> <li>• Success Subject Contains</li> <li>• Failure Subject Contains</li> <li>• Success Subject Does Not Contain</li> <li>• Failure Subject Does Not Contain</li> </ul> <p>Default is - - None - -.</p>
Content Value	Required if <a href="#">Email Content Processing</a> is not - - None - -; Content Value to be matched in the email.
Case Sensitive Content	If <a href="#">Email Content Processing</a> is not - - None - -; Indication of whether or not matching will be performed in a case sensitive manner.
<b>Email Monitor Criteria</b>	This section contains criteria for selecting emails to monitor.

From Filter	<p>Type of From filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - - None - - (default)</li> <li>• Equals</li> <li>• Contains</li> <li>• Does Not Equal</li> <li>• Does Not Contain</li> <li>• Regex</li> </ul>
From	<p>If <b>From Filter</b> = any value other than - - None - - ; From filter condition value.</p>
To Filter	<p>Type of To filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - - None - - (default)</li> <li>• Equals</li> <li>• Contains</li> <li>• Does Not Equal</li> <li>• Does Not Contain</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>
To	<p>If <b>To Filter</b> = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; To filter condition value.</p>
Cc Filter	<p>Type of Cc filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - - None - - (default)</li> <li>• Equals</li> <li>• Contains</li> <li>• Does Not Equal</li> <li>• Does Not Contain</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>
Cc	<p>If <b>Cc Filter</b> = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; Cc filter condition value.</p>

<p>Subject Filter</p>	<p>Type of Subject filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - - None - - (default)</li> <li>• Equals</li> <li>• Starts With</li> <li>• Contains</li> <li>• Ends With</li> <li>• Does Not Equal</li> <li>• Does Not Start With</li> <li>• Does Not Contain</li> <li>• Does Not End With</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>
<p>Subject</p>	<p>If <a href="#">Subject Filter</a> = anything other than - - None - -, Is Blank, or Is Not Blank; Subject filter condition value.</p>
<p>Body Filter</p>	<p>Type of Body filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - - None - - (default)</li> <li>• Equals</li> <li>• Starts With</li> <li>• Contains</li> <li>• Ends With</li> <li>• Does Not Equal</li> <li>• Does Not Start With</li> <li>• Does Not Contain</li> <li>• Does Not End With</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>
<p>Body</p>	<p>If <a href="#">Body Filter</a> = anything other than - - None - -, Is Blank, or Is Not Blank; Body filter condition value.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Case Sensitive</p>	<p>If enabled, text-based filters should be treated as case-sensitive.</p>



<p><b>Wait / Delay Options</b></p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>

Wait Duration	If <a href="#">Wait To Start</a> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If <a href="#">Wait To Start</a> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - - System Default - - Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.

<p>Late Start Type</p>	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
<p>Late Start Time</p>	<p>If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>

<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>
<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>

<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>


<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>
<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is -- None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p>User Estimated Duration</p>	<p>Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>

<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <a href="#">CP Duration Unit</a> 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.</p>
<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>

Restriction Period	<p>If <b>Execution Restriction</b> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <b>Before Date</b> value.</li> <li>• After Restriction is valid if the date is after the <b>After Date</b> value.</li> <li>• Span Restriction is valid if the date is before the <b>Before Date</b> value and after <b>After Date</b> value.</li> <li>• On Restriction is valid if the date is one of the <b>Date List</b> values.</li> </ul>
Before Date	If <b>Restriction Period</b> = Before or Span; Date before which the restriction is valid.
Before Time	If <b>Restriction Period</b> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <b>Restriction Period</b> = After or Span; Date after which the restriction is valid.
After Time	If <b>Restriction Period</b> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <b>Restriction Period</b> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	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; shortest amount of time this task has taken to run.

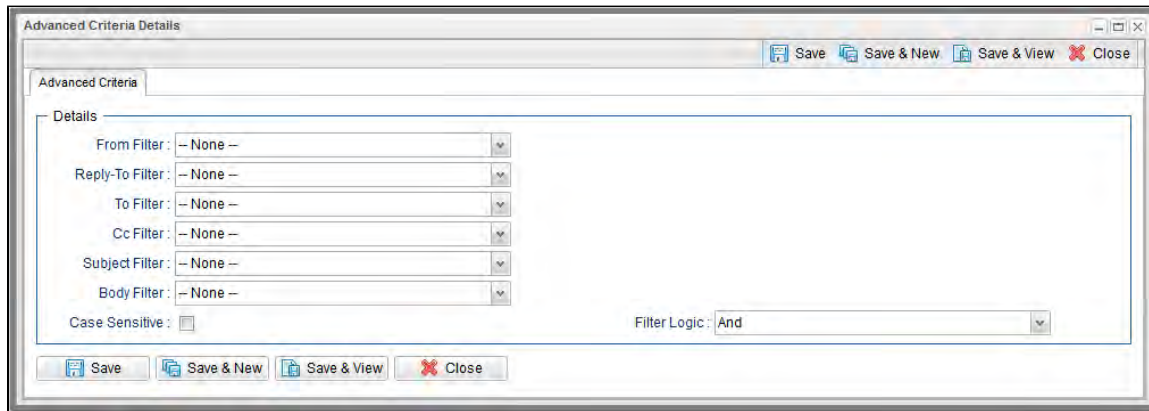


Average Instance Time	System-supplied; average amount of time this task takes to run.
Highest Instance Time	System-supplied; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.
<b>Launch Task</b>	Manually launches the task.
<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.

<p><b>Delete</b></p>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>										
<p><b>Refresh</b></p>	<p>Refreshes any dynamic data displayed in the Details.</p>										
<p><b>Close</b></p>	<p>For pop-up view only; closes the pop-up view of this task.</p>										
<p><b>Tabs</b></p>	<p>This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.</p>										
<p><b>Advanced Criteria</b></p>	<p>If the <a href="#">Use Advanced Criteria</a> field is enabled; advanced search criteria to use for Email Monitor filter criteria.</p>										
<p><b>Variables</b></p>	<p>Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.</p>										
<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>Task instance status</li> <li>Exit codes</li> <li>Late start</li> <li>Late finish</li> <li>Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="273 1096 1957 1432"> <tr> <td data-bbox="273 1096 472 1144"><b>Abort Action</b></td> <td data-bbox="472 1096 1957 1144">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="273 1144 472 1218"><b>Email Notification</b></td> <td data-bbox="472 1144 1957 1218">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="273 1218 472 1291"><b>Set Variable</b></td> <td data-bbox="472 1218 1957 1291">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="273 1291 472 1364"><b>SNMP Notification</b></td> <td data-bbox="472 1291 1957 1364">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="273 1364 472 1432"><b>System Operation</b></td> <td data-bbox="472 1364 1957 1432">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .										
<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .										
<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .										
<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										

<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Mutually Exclusive</b>	Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.
<b>Instances</b>	Lists all instances of this task.
<b>Email Monitor Triggers</b>	Lists all Email Monitor triggers that reference this task in the <a href="#">Email Monitor</a> field of the trigger Details; that is, a list of all Email Monitor triggers that execute this task. For instructions on creating triggers, see <a href="#">Triggers</a> .
<b>Triggers</b>	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 <a href="#">Triggers</a> .
<b>Notes</b>	Lists all <a href="#">notes</a> associated with this record.
<b>Versions</b>	Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a> .

## Advanced Criteria



## 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	<p>Type of From filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None -- (default)</li> <li>• Equals</li> <li>• Contains</li> <li>• Does Not Equal</li> <li>• Does Not Contain</li> <li>• Regex</li> </ul>
Reply-To Filter	<p>Type of Reply-To filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None -- (default)</li> <li>• Equals</li> <li>• Contains</li> <li>• Does Not Equal</li> <li>• Does Not Contain</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>
To Filter	<p>Type of To filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None -- (default)</li> <li>• Equals</li> <li>• Contains</li> <li>• Does Not Equal</li> <li>• Does Not Contain</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>

Cc Filter	<p>Type of Cc filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None -- (default)</li> <li>• Equals</li> <li>• Contains</li> <li>• Does Not Equal</li> <li>• Does Not Contain</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>
Subject Filter	<p>Type of Subject filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None -- (default)</li> <li>• Equals</li> <li>• Starts With</li> <li>• Contains</li> <li>• Ends With</li> <li>• Does Not Equal</li> <li>• Does Not Start With</li> <li>• Does Not Contain</li> <li>• Does Not End With</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>
Body Filter	<p>Type of Body filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None -- (default)</li> <li>• Equals</li> <li>• Starts With</li> <li>• Contains</li> <li>• Ends With</li> <li>• Does Not Equal</li> <li>• Does Not Start With</li> <li>• Does Not Contain</li> <li>• Does Not End With</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>

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 Reference Id: 5

Task: stonebranch-emailmonitortask-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: 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:

Filter Logic: And

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 --

Use Advanced Criteria:

**Email Monitor Criteria**

From Filter: -- None --

To Filter: -- None --

Cc Filter: -- None --

Subject Filter: -- None --

Body Filter: -- None --

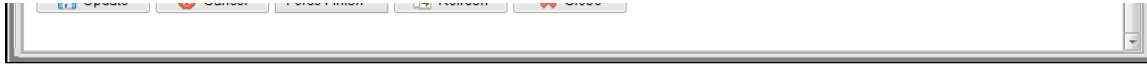
Case Sensitive:

**Statistics**

User Estimated End Time: Average Estimated End Time: 2017-06-29 16:42:21 -0400

Shortest Estimated End Time: Longest Estimated End Time:

Update Cancel Force Finish Refresh Close




## 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
<b>General</b>	This section contains general information about the task instance.
{anchor:Instance Name}}Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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: <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
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	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
Virtual Resource Priority	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
Hold Resources on Failure	<p>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.</p>
<b>Status</b>	<p>This section contains information about the current status of the task instance.</p>
Status	<p>System-supplied; see <a href="#">Task Instance Statuses</a>.</p>
Exit Code	<p>System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).</p>
Status Description	<p>System-supplied; additional information, if any, about the status of the task instance.</p>
Operational Memo	<p>User-defined operational memo.</p>
Evaluation Time	<p>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.)</p>
Critical	<p>Indicates that this task is in the Critical Path of a workflow.</p>
Wait Until Time	<p>Amount of time calculated to wait before the task was started, based on <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> times.</p>

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.
<b>Email Monitor Details</b>	This section contains assorted detailed information about the task.
Email Connection	Required; Name of an incoming <a href="#">Email Connection</a> (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 <a href="#">Email Connection</a> field is a reference field for selecting a specific <a href="#">Email Connection</a> (unchecked) or a text field for specifying the <a href="#">Email Connection</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a> .  <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b>                      When updating multiple Tasks, to change from using an Email Connection reference to using an Email Connection variable, you must change the <b>Email Connection Variable</b> field to <b>Yes</b> and specify the Email Connection variable in the <b>Email Connection Unresolved</b> field. Conversely, to change from using an Email Connection variable to using an Email Connection reference, you must change the <b>Email Connection Variable</b> field to <b>No</b> and specify the Email Connection reference in the <b>Email Connection</b> field.</p> </div>
Credentials	<a href="#">Credentials</a> to be used to connect to the Email server.

<p>Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>Filter Logic</p>	<p>Logic to apply when combining filters. If <a href="#">Use Advanced Criteria</a> is enabled, it is the logic to apply when combining <a href="#">Advanced Criteria</a> records.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• And (default)</li> <li>• Or</li> </ul>
<p>Use Advanced Criteria</p>	<p>If enabled, use advanced criteria specified under the <a href="#">Advanced Criteria</a> tab for the Email Monitor filter criteria.</p>
<p>Sent Restriction</p>	<p>Type of Sent restriction to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None -- (default)</li> <li>• On</li> <li>• Before</li> <li>• After</li> <li>• Span</li> </ul>
<p>Sent On</p>	<p>If <a href="#">Sent Restriction</a> = On; Sent On restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Date (default)</li> <li>• Today</li> <li>• Yesterday</li> <li>• Tomorrow</li> </ul>
<p>Sent On Date</p>	<p>If <a href="#">Sent On</a> = Date; Specific date for the Sent On restriction value.</p>

<p>Sent Before</p>	<p>If <b>Sent Restriction</b> = Before; Sent Before restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Date (default)</li> <li>• Today</li> <li>• Yesterday</li> <li>• Tomorrow</li> <li>• Launch Time</li> <li>• Relative</li> </ul>
<p>Sent Before Date</p>	<p>If <b>Sent Before</b> = Date; Specific date for the Sent Before restriction value.</p>
<p>Sent Before Offset</p>	<p>If <b>Sent Before</b> = Relative; Offset, relative to the last launch time, for the Sent Before restriction value. Format: [+/-]hh:mm</p>
<p>Sent After</p>	<p>If <b>Sent Restriction</b> = After; Sent After restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Date (default)</li> <li>• Today</li> <li>• Yesterday</li> <li>• Tomorrow</li> <li>• Launch Time</li> <li>• Relative</li> </ul>
<p>Sent After Date</p>	<p>If <b>Sent After</b> = Date; Specific date for the Sent After restriction value.</p>
<p>Sent After Offset</p>	<p>If <b>Sent After</b> = Relative; Offset, relative to the last launch time, for the Sent After restriction value.</p>
<p>Received Restriction</p>	<p>Type of Received restriction to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - - None - - (default)</li> <li>• On</li> <li>• Before</li> <li>• After</li> <li>• Span</li> </ul>


Received On	<p>If <b>Received Restriction</b> = On; Received On restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Date (default)</li> <li>• Today</li> <li>• Yesterday</li> <li>• Tomorrow</li> </ul>
Received On Date	<p>If <b>Received On</b> = Date; Specific date for the Received On restriction value.</p>
Received Before	<p>If <b>Received Restriction</b> = Before; Received Before restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Date (default)</li> <li>• Today</li> <li>• Yesterday</li> <li>• Tomorrow</li> <li>• Relative</li> </ul>
Received Before Date	<p>If <b>Received Before</b> = Date; Specific date for the Received Before restriction value.</p>
Received Before Offset	<p>If <b>Received Before</b> = Relative; Offset, relative to the last launch time, for the Received Before restriction value. Format: [+/-]hh:mm</p>
Received After	<p>If <b>Received Restriction</b> = After; Received After restriction value.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Date (default)</li> <li>• Today</li> <li>• Yesterday</li> <li>• Tomorrow</li> <li>• Relative</li> </ul>
Received After Date	<p>If <b>Received After</b> = Date; Specific date for the Received After restriction value.</p>
Received After Offset	<p>If <b>Received After</b> = Relative; Offset, relative to the last launch time, for the Received After restriction value.</p>

<p>Include Read Mail</p>	<p>If enabled, specifies that mail marked as read should be included by the filter.</p>
<p>Mailbox Folder</p>	<p>Mailbox folder to monitor on the server specified in the selected Email Connection.</p>
<p>Action</p>	<p>Action to take on mail that matches the filter.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Mark As Read (default)</li> <li>• Delete</li> <li>• Delete/Mark As Read</li> <li>• Move</li> <li>• Move/Mark As Read</li> </ul>
<p>Body Variables</p>	<p>Specifies whether to parse the Email body for name/value pairs to create variables from.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None -- No processing of the Email body will occur.</li> <li>• 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.</li> <li>• Within Default Markers Marker begin and end values are defined by the <a href="#">Email Body Default Begin Marker</a> and <a href="#">Email Body Default End Marker</a> Universal Controller system properties.</li> <li>• Within Custom Markers Marker begin and end values are defined in the <a href="#">Begin Marker</a> and <a href="#">End Marker</a> fields.</li> </ul> <p>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.</p>
<p>Time Limit</p>	<p>Used for Email Monitor tasks not associated with a trigger; Amount of time (in units specified by <a href="#">Time Limit Unit</a>) 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.</p>
<p>Time Limit Unit</p>	<p>Unit of time to use for <a href="#">Time Limit</a>.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Minutes</li> <li>• Hours (default)</li> <li>• Days</li> </ul>

<p>Email Content Processing</p>	<p>Method for determining the success or failure of this task based on Email content.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None --</li> <li>• Success Body Contains</li> <li>• Failure Body Contains</li> <li>• Success Body Does Not Contain</li> <li>• Failure Body Does Not Contain</li> <li>• Success Subject Contains</li> <li>• Failure Subject Contains</li> <li>• Success Subject Does Not Contain</li> <li>• Failure Subject Does Not Contain</li> </ul> <p>Default is -- None --.</p>
<p>Content Value</p>	<p>Required if <a href="#">Email Content Processing</a> is not -- None --; Content Value to be matched in the email.</p>
<p>Case Sensitive Content</p>	<p>If <a href="#">Email Content Processing</a> is not -- None --; Indication of whether or not matching will be performed in a case sensitive manner.</p>
<p><b>Email Monitor Criteria</b></p>	<p>This section contains criteria for selecting emails to monitor.</p>
<p>From Filter</p>	<p>Type of From filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None -- (default)</li> <li>• Equals</li> <li>• Contains</li> <li>• Does Not Equal</li> <li>• Does Not Contain</li> <li>• Regex</li> </ul>
<p>From</p>	<p>If <a href="#">From Filter</a> = any value other than -- None --; From filter condition value.</p>

<p>Reply-To Filter</p>	<p>Type of Reply-To filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None -- (default)</li> <li>• Equals</li> <li>• Contains</li> <li>• Does Not Equal</li> <li>• Does Not Contain</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>
<p>Reply-To</p>	<p>If <a href="#">Reply-To Filter</a> = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; Reply-To filter condition value.</p>
<p>To Filter</p>	<p>Type of To filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None -- (default)</li> <li>• Equals</li> <li>• Contains</li> <li>• Does Not Equal</li> <li>• Does Not Contain</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>
<p>To</p>	<p>If <a href="#">To Filter</a> = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; To filter condition value.</p>
<p>Cc Filter</p>	<p>Type of Cc filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None -- (default)</li> <li>• Equals</li> <li>• Contains</li> <li>• Does Not Equal</li> <li>• Does Not Contain</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>
<p>Cc</p>	<p>If <a href="#">Cc Filter</a> = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; Cc filter condition value.</p>



<p>Subject Filter</p>	<p>Type of Subject filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - - None - - (default)</li> <li>• Equals</li> <li>• Starts With</li> <li>• Contains</li> <li>• Ends With</li> <li>• Does Not Equal</li> <li>• Does Not Start With</li> <li>• Does Not Contain</li> <li>• Does Not End With</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>
<p>Subject</p>	<p>If <a href="#">Subject Filter</a> = anything other than - - None - -, Is Blank, or Is Not Blank; Subject filter condition value.</p>
<p>Body Filter</p>	<p>Type of Body filter condition to apply.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• - - None - - (default)</li> <li>• Equals</li> <li>• Starts With</li> <li>• Contains</li> <li>• Ends With</li> <li>• Does Not Equal</li> <li>• Does Not Start With</li> <li>• Does Not Contain</li> <li>• Does Not End With</li> <li>• Is Blank</li> <li>• Is Not Blank</li> <li>• Regex</li> </ul>
<p>Body</p>	<p>If <a href="#">Body Filter</a> = anything other than - - None - -, Is Blank, or Is Not Blank; Body filter condition value.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> 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.</p> </div>
<p>Case Sensitive</p>	<p>If enabled, text-based filters should be treated as case-sensitive.</p>

<p><b>Wait / Delay Options</b></p>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
<p>Wait To Start</p>	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
<p>Wait Time</p>	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>
<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None --             <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>

Wait Duration	If <a href="#">Wait To Start</a> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If <a href="#">Wait To Start</a> = Seconds; Number of seconds to wait before starting the task.
Delay On Start	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.
Late Finish Type	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Late Finish Time	If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Late Finish Nth Amount	If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.

<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>
<p>Early Finish</p>	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
<p>Finished Early</p>	<p>System-supplied; this field is flagged if the task finished earlier than the time specified in the <a href="#">Early Finish</a> fields.</p>
<p>Early Finish Type</p>	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Early Finish Time</p>	<p>If <a href="#">Early Finish Type</a> = 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.</p>

<p>Early Finish Day Constraint</p>	<p>If <b>Early Finish Type</b> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <b>Early Finish Day Constraint</b> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <b>Early Finish Type</b> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Critical Path Options</b></p>	<p>This section contains Critical Path-related specifications for the task.</p>
<p>CP Duration</p>	<p>Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the <b>CP Duration Unit</b> 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.</p>

<p>CP Duration (Resolved)</p>	<p>Displays the current resolved value of the <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a>. If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.</p>
<p>CP Duration Unit</p>	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<p><b>Workflow Execution Options</b></p>	<p>This section contains Execution Restriction specifications for the task if it is within a Workflow.</p>
<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>



Before Date	If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.
Before Time	If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.
After Time	If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.
Date List	If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.
<b>Statistics</b>	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.

<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .
<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Advanced Criteria</b>	If the <a href="#">Use Advanced Criteria</a> field is enabled; advanced search criteria to use for Email Monitor filter criteria.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Notes</b>	Lists all <a href="#">notes</a> 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](#).

## Web Service Task

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- [SSL Secured HTTPS](#)
- [Built-In Variables](#)
- [Creating a Web Service Task](#)
  - [Web Service Task Details](#)
  - [Web Service Task Details Field Descriptions](#)
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  - [Web Service Task Instance Details](#)
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### Overview

The Web Service Task allows you to invoke a Web Service running on any application server.

### SSL 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](#) (`opswise.properties`) file:

- `opswise.trustmanager.truststore`
- `opswise.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

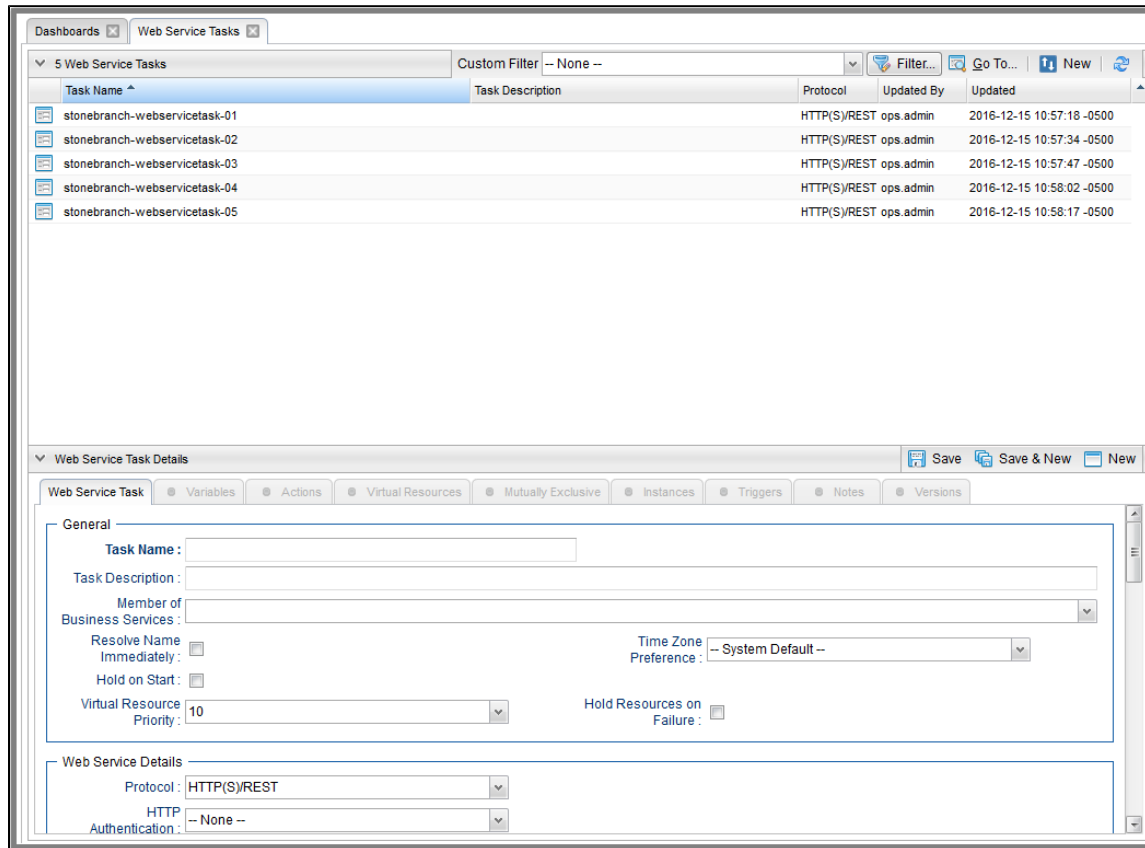
The following [built-in variables](#) can be used in a Web Service task to pass data where appropriate:

- [Task Instance variables](#)
- [Web Service Task Instance variables](#)

### Creating a Web Service Task

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**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.



**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.

Web Service Task Details: stonebranch-webservicetask-01

Update Launch Task View Parents Copy Delete Refresh Close

Web Service Task Variables Actions Virtual Resources Mutually Exclusive Instances Triggers Notes Versions

**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://localhost:8080/opswise/resources/task

URL Query Parameters:

Name	Value
No items to show.	

HTTP Payload Type: Raw MIME Type: application/javascript

Payload Source: Form

Payload:

HTTP Headers:

Name	Value
No items to show.	

Response Processing: Default Success Status Code Range

Auto Cleanup:

**Retry Options**

Maximum Retries: 0 Retry Indefinitely:

Retry Interval (Seconds): 60 Suppress Intermediate Failures:

**Wait/Delay Options**


## 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
<b>General</b>	This section contains general information about the task.
Task Name	User-defined name of this task (Maximum = 255 alphanumeric characters); <a href="#">variables</a> supported. It is the responsibility of the user to develop a workable <a href="#">naming scheme</a> 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 <a href="#">Versions tab</a> to view previous versions. For details, see <a href="#">Record Versioning</a> .
Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
Resolve Name Immediately	If enabled, the <a href="#">Instance Name</a> of the task instance will be resolved immediately at trigger/launch time.



<p>Time Zone Preference</p>	<p>User-defined; allows you to specify the time zone that will be applied to the task.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
<p>Hold on Start</p>	<p>If enabled, when the task is launched it appears in the Activity Monitor with a status of <b>Held</b>. The task runs when the user <a href="#">releases</a> it.</p>
<p>Hold Reason</p>	<p>Information about why the task will be put on hold when it starts.</p>
<p>Virtual Resource Priority</p>	<p>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.</p> <p>Options: 1 (high) - 20 (low).</p> <p>Default is 10.</p>
<p>Hold Resources on Failure</p>	<p>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.</p>
<p><b>Web Service Details</b></p>	<p>This section contains assorted detailed information about the task.</p>
<p>Protocol</p>	<p>Protocol to use for the operation.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• HTTP(S)/REST</li> <li>• SOAP</li> </ul> <p>Default is HTTP(S)/REST.</p>

<p>HTTP Authentication</p>	<p>HTTP authentication scheme to use.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None --</li> <li>• Basic</li> </ul> <p>Default is -- None --.</p>
<p>Credentials</p>	<p>If <a href="#">HTTP Authentication</a> = Basic; <a href="#">Credentials</a> used when invoking the Web Service.</p>
<p>Credentials Variable</p>	<p>If <a href="#">HTTP Authentication</a> = Basic; Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                  When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>HTTP Version</p>	<p>Version of the HTTP protocol to use.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• 1.0</li> <li>• 1.1</li> </ul> <p>Default is 1.1.</p>
<p>HTTP Method</p>	<p>If <a href="#">Protocol</a> = HTTP(S)/REST; Type of HTTP request method to use.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul> <p>Default is POST.</p>

<p>SOAP Version</p>	<p>If <b>Protocol</b> = SOAP; Version of the SOAP protocol to use.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• 1.1</li> <li>• 1.2</li> </ul> <p>Default is 1.2.</p>
<p>Timeout</p>	<p>Number of seconds to wait for the request to complete.</p> <p>If no value is specified, the value defaults to the <a href="#">Web Service Task Timeout</a> Universal Controller property value.</p>
<p>URL</p>	<p>URL of the target service, excluding query parameters.</p> <p>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 <a href="#">URL Query Parameters</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>  The <a href="#">Web Service Task URL Whitelist Regular Expression</a> Universal Controller system property specifies which URLs are supported by the Web Service task. (The default allows all URLs to be supported.)</p> <p>If a task instance attempts to run, but this URL does not match a URL specified by <a href="#">Web Service Task URL Whitelist Regular Expression</a>, the task instance transitions to a Start Failure with an appropriate Status Description.</p> </div>
<p>URL Query Parameters</p>	<p>Any query parameters to be encoded as a query string and appended to the URL.</p>
<p>HTTP Payload Type</p>	<p>If <b>Protocol</b> = HTTP(S)/REST and <b>HTTP Method</b> = POST, PUT, or PATCH; Type of HTTP payload.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Raw</li> <li>• Form Data</li> </ul> <p>Default is Raw.</p>

<p>MIME Type</p>	<p>If <b>Protocol</b> = HTTP(S)/REST; MIME type of the message body.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• application/javascript</li> <li>• application/json</li> <li>• application/xml</li> <li>• text/html</li> <li>• text/plain</li> <li>• text/xml</li> <li>• Other...</li> </ul> <p>No default.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b> If <b>HTTP Payload Type</b> = Form Data, MIME Type is automatically assigned a value of <b>application/x-www-form-urlencoded</b> and becomes read only.</p> </div>
<p>Form Data</p>	<p>If <b>HTTP Payload Type</b> = Form Data; Any parameters to be encoded and added to the message body.</p>
<p>SOAP Payload Type</p>	<p>If <b>Protocol</b> = SOAP; Type of SOAP payload.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Body</li> <li>• Envelope</li> </ul> <p>Default is Body.</p>
<p>SOAP Action</p>	<p>If <b>Protocol</b> = SOAP; Value of:</p> <ul style="list-style-type: none"> <li>• SOAPAction HTTP Header field in SOAP 1.1</li> <li>• action parameter in SOAP 1.2</li> </ul>
<p>Payload Source</p>	<p>If <b>HTTP Payload Type</b> = 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.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Form</li> <li>• Script</li> </ul> <p>Default is Form.</p>

Payload	<p>If <a href="#">Payload Source</a> = Form; Request payload.</p>
HTTP Headers	<p>HTTP headers</p>
SOAP Response Output	<p>If <a href="#">Protocol</a> = SOAP; Element of the SOAP response to be captured as output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Body/First Element</li> <li>• Body</li> <li>• Envelope</li> </ul> <p>Default is Body/First Element.</p>
Response Processing	<p>Specification for how to process the response in order to determine success or failure.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Default Success Status Code Range</li> <li>• Success Status Code Range</li> <li>• Failure Status Code Range</li> <li>• Success Output Contains</li> <li>• Failure Output Contains</li> </ul> <p>Default is Default Success Status Code Range.</p>
Status Codes	<p>If <a href="#">Response Processing</a> = Success Status Code Range or Failure Status Code Range; Qualifying status codes. Format: 200-299,503.</p>
Output Type	<p>If <a href="#">Response Processing</a> = 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.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Text</li> <li>• XML</li> <li>• JSON</li> </ul> <p>Default is Text.</p>

<p>Path Expression</p>	<p>XPath Expression (if <b>Output Type</b> = XML) or JSON Path Expression (if <b>Output Type</b> = JSON) to be used when evaluating the response output.</p> <p>Refer to <a href="https://www.w3schools.com/xml/xpath_intro.asp">https://www.w3schools.com/xml/xpath_intro.asp</a> and <a href="https://github.com/json-path/JsonPath">https://github.com/json-path/JsonPath</a> respectively for more details.</p>
<p>Strategy</p>	<p>If <b>Output Type</b> = XML or JSON; Strategy to take when applying the condition <b>Operator</b> and <b>Value</b> against the <b>Path Expression</b> matches.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Match Any</li> <li>• Match All</li> <li>• Match None</li> <li>• Count</li> </ul> <p>Default is Match Any.</p>
<p>Operator</p>	<p>If <b>Response Processing</b> = Success Output Contains or Failure Output Contains; Condition operator to evaluate in combination with the specified condition <b>Value</b>.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• =</li> <li>• !=</li> <li>• &gt;</li> <li>• &gt;=</li> <li>• &lt;</li> <li>• &lt;=</li> <li>• regex</li> </ul> <p>Default is =.</p>
<p>Value</p>	<p>If <b>Response Processing</b> = Success Output Contains or Failure Output Contains; Condition value to evaluate in combination with the specified condition <b>Operator</b>.</p>
<p>Auto Cleanup</p>	<p>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.</p>
<p><b>Retry Options</b></p>	<p>This section contains specifications for retrying the task.</p>
<p>Maximum Retries</p>	<p>User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.</p>
<p>Retry Indefinitely</p>	<p>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 <b>Maximum Retries</b> field.</p>

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

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>



Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
Workflow Only	<p>Specification for whether or not to apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• - - System Default - - Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications as defined by the <a href="#">System Default Wait/Delay Workflow Only</a> system property. (Default is <b>yes</b>.)</li> <li>• Yes Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications only if the task is in a Workflow.</li> <li>• No Apply the <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> specifications whether or not the task is in a Workflow.</li> </ul>
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	<p>Required if <a href="#">Late Start</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>


<p>Late Finish Type</p>	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
<p>Late Finish Time</p>	<p>If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.</p>
<p>Late Finish Day Constraint</p>	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Finish Nth Amount</p>	<p>If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Finish Duration</p>	<p>If <a href="#">Late Finish Type</a> = Duration; Longest amount of time this task instance should take to run.</p>

Early Finish	<p>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 <a href="#">Early Finish Type</a>). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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.</p>
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	<p>If <a href="#">Early Finish Type</a> = 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.</p>
Early Finish Day Constraint	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>

Early Finish Nth Amount	If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.
Early Finish Duration	If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the <a href="#">User Estimated End Time</a> on a task instance record.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.  Options: <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> Default is Minutes.
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for task instances of the task.</p>

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; shortest 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; longest amount of time this task has taken to run.
Number of Instances	System-supplied; number of instances in the database for this task.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new task.
<b>Update</b>	Saves updates to the record.
<b>Launch Task</b>	Manually launches the task.

<b>View Parents</b>	Displays a list of any parent Workflow tasks for this task.
<b>Copy</b>	Creates a copy of this task, which you are prompted to rename.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> You cannot delete a task if it is either:</p> <ul style="list-style-type: none"> <li>Specified in an enabled Trigger.</li> <li>The only task specified in a disabled Trigger.</li> </ul> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
<b>Variables</b>	Lists all <a href="#">user-defined variables</a> associated with this record; that is, variables that have been defined for this specific record.



<p><b>Actions</b></p>	<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> <ul style="list-style-type: none"> <li>• Task instance status</li> <li>• Exit codes</li> <li>• Late start</li> <li>• Late finish</li> <li>• Early finish</li> </ul> <p>Actions are:</p> <table border="1" data-bbox="296 453 1961 786"> <tr> <td data-bbox="296 453 489 500"><b>Abort Action</b></td> <td data-bbox="489 453 1961 500">Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a>.</td> </tr> <tr> <td data-bbox="296 500 489 573"><b>Email Notification</b></td> <td data-bbox="489 500 1961 573">Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a>.</td> </tr> <tr> <td data-bbox="296 573 489 646"><b>Set Variable</b></td> <td data-bbox="489 573 1961 646">Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a>.</td> </tr> <tr> <td data-bbox="296 646 489 719"><b>SNMP Notification</b></td> <td data-bbox="489 646 1961 719">Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a>.</td> </tr> <tr> <td data-bbox="296 719 489 786"><b>System Operation</b></td> <td data-bbox="489 719 1961 786">Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a>.</td> </tr> </table>	<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .	<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .	<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .	<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .	<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .
<b>Abort Action</b>	Abort the task if certain events occur. For details, see <a href="#">Abort Actions</a> .										
<b>Email Notification</b>	Send an email if certain events occur. For details, see <a href="#">Email Notification Actions</a> .										
<b>Set Variable</b>	Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see <a href="#">Creating a Set Variable Action within a Task or Workflow</a> .										
<b>SNMP Notification</b>	Send an email if certain events occur. For details, see <a href="#">SNMP Notification Actions</a> .										
<b>System Operation</b>	Run an Universal Controller system operation based on specified conditions. For details, see <a href="#">System Operation Actions</a> .										
<p><b>Virtual Resources</b></p>	<p>Lists all <a href="#">Virtual Resources</a> to which this task is assigned.</p>										
<p><b>Mutually Exclusive</b></p>	<p>Lists all tasks that have been set to be <a href="#">mutually exclusive</a> of this task.</p>										
<p><b>Instances</b></p>	<p>Lists all instances of this task.</p>										
<p><b>Task Monitor Triggers</b></p>	<p>Lists all Task Monitor triggers that reference this task in the <a href="#">Task Monitor</a> field of the trigger Details; that is, a list of all Task Monitor triggers that execute this task. For instructions on creating triggers, see <a href="#">Triggers</a>.</p>										
<p><b>Triggers</b></p>	<p>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: &lt;current task name&gt;#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see <a href="#">Triggers</a>.</p>										
<p><b>Notes</b></p>	<p>Lists all <a href="#">notes</a> associated with this record.</p>										

<b>Versions</b>	Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a> .
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## 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](#).

Web Service Task Instance Details: stonebranch-webservicetask-01

Update Force Finish Re-run Delete Refresh Close

Web Service Task Instance Virtual Resources Exclusive Requests Output Notes

**General**

Instance Name: stonebranch-webservicetask-01 Reference Id: 1

Task: stonebranch-webservicetask-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: Success Exit Code: 0

Status Description:

Operational Memo:

Trigger Time: Launch Time: 2017-02-03 13:37:34 -0500

Start Time: 2017-02-03 13:37:35 -0500 End Time: 2017-02-03 13:37:35 -0500

Duration:

**Web Service Details**

Protocol: HTTP(S)/REST

HTTP Authentication: -- None --

HTTP Version: 1.1

HTTP Method: POST Timeout:

URL: http://localhost:8080/opswise/resources/task

URL Query Parameters:

Name	Value
No items to show.	

HTTP Payload Type: Raw MIME Type: application/javascript

Payload Source: Form

Payload:

HTTP Headers:

Name	Value
No items to show.	

Response

Processing: Default Success Status Code Range  Auto Cleanup

**Retry Options**

Maximum Retries:       Retry Indefinitely:

Retry Interval (Seconds):       Suppress Intermediate Failures:

Current Retry Count:

**Statistics**

User Estimated End Time:       Average Estimated End Time:

Shortest Estimated End Time:       Longest 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
<b>General</b>	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Reference Id	System-supplied; the Controller increments this number each time the task is run.
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: <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) Instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) Instance was launched by the named workflow.</li> <li>• Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>


Task Description	Description of this record. (Maximum = 200 characters.)
Member of Business Services	User-defined; allows you to select one or more <a href="#">Business Services</a> that this record belongs to.
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: <ul style="list-style-type: none"> <li>• – System Default – Time zone is based on the value of the <a href="#">Task Timezone Preference</a> Universal Controller system property: Server or Inherited.</li> <li>• Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server.</li> <li>• 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.</li> </ul>
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) - 20 (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.
<b>Status</b>	This section contains information about the current status of the task instance.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
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 <a href="#">Wait To Start</a> and <a href="#">Delay On Start</a> 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.
<b>Web Service Details</b>	This section contains assorted detailed information about the task instance.
Protocol	<p>Protocol to use for the operation.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• HTTP(S)/REST</li> <li>• SOAP</li> </ul> <p>Default is HTTP(S)/REST.</p>

<p>HTTP Authentication</p>	<p>HTTP authentication scheme to use.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None --</li> <li>• Basic</li> </ul> <p>Default is -- None --.</p>
<p>Credentials</p>	<p>If <a href="#">HTTP Authentication</a> = Basic; <a href="#">Credentials</a> used when invoking the Web Service.</p>
<p>Credentials Variable</p>	<p>If <a href="#">HTTP Authentication</a> = Basic; Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                  When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>HTTP Version</p>	<p>Version of the HTTP protocol to use.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• 1.0</li> <li>• 1.1</li> </ul> <p>Default is 1.1.</p>
<p>HTTP Method</p>	<p>If <a href="#">Protocol</a> = HTTP(S)/REST; Type of HTTP request method to use.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul> <p>Default is POST.</p>
<p>Form Data</p>	<p>If <a href="#">HTTP Payload Type</a> = Form Data; Any parameters to be encoded and added to the message body.</p>

<p>SOAP Version</p>	<p>If <b>Protocol</b> = SOAP; Version of the SOAP protocol to use.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• 1.1</li> <li>• 1.2</li> </ul> <p>Default is 1.2.</p>
<p>Timeout</p>	<p>Number of seconds to wait for the request to complete.</p> <p>If no value is specified, the value defaults to the <a href="#">Web Service Task Timeout</a> Universal Controller property value.</p>
<p>URL</p>	<p>URL of the target service, excluding query parameters.</p> <p>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 <a href="#">URL Query Parameters</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b>              The <a href="#">Web Service Task URL Whitelist Regular Expression</a> Universal Controller system property specifies which URLs are supported by the Web Service task. (The default allows all URLs to be supported.)</p> <p>If a task instance attempts to run, but this URL does not match a URL specified by <a href="#">Web Service Task URL Whitelist Regular Expression</a>, the task instance transitions to a Start Failure with an appropriate Status Description.</p> </div>
<p>URL Query Parameters</p>	<p>Any query parameters to be encoded as a query string and appended to the URL.</p>
<p>HTTP Payload Type</p>	<p>If <b>Protocol</b> = HTTP(S)/REST; Type of HTTP payload.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Raw</li> <li>• Form Data</li> </ul> <p>Default is Raw.</p>



MIME Type	<p>MIME type of the message body.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• application/javascript</li> <li>• application/json</li> <li>• application/xml</li> <li>• text/html</li> <li>• text/plain</li> <li>• text/xml</li> <li>• Other...</li> </ul> <p>No default.</p> <div style="background-color: #ffffcc; padding: 5px; margin-top: 10px;">  <b>Note</b>                      If <a href="#">HTTP Payload Type</a> = Form Data, MIME Type is automatically assigned a value of <b>application/x-www-form-urlencoded</b> and becomes read only.                 </div>
SOAP Payload Type	<p>If <a href="#">Protocol</a> = SOAP; Type of SOAP payload.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Body</li> <li>• Envelope</li> </ul> <p>Default is Body.</p>
SOAP Action	<p>If <a href="#">Protocol</a> = SOAP; Value of:</p> <ul style="list-style-type: none"> <li>• SOAPAction HTTP Header field in SOAP 1.1</li> <li>• action parameter in SOAP 1.2</li> </ul>
Payload Source	<p>If <a href="#">HTTP Payload Type</a> = 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.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Form</li> <li>• Script</li> </ul> <p>Default is Form.</p>
Payload	<p>If <a href="#">HTTP Payload Type</a> = Raw; Request payload.</p>
Payload Script	<p>If <a href="#">Payload Source</a> = Script; Reference to a web service payload script that contains the content of the request payload.</p>

<p>HTTP Headers</p>	<p>HTTP headers</p>
<p>SOAP Response Output</p>	<p>If <b>Protocol</b> = SOAP; Element of the SOAP response to be captured as output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Body/First Element</li> <li>• Body</li> <li>• Envelope</li> </ul> <p>Default is Body/First Element.</p>
<p>Response Processing</p>	<p>Specification for how to process the response in order to determine success or failure.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Default Success Status Code Range</li> <li>• Success Status Code Range</li> <li>• Failure Status Code Range</li> <li>• Success Output Contains</li> <li>• Failure Output Contains</li> </ul> <p>Default is Default Success Status Code Range.</p>
<p>Status Codes</p>	<p>If <b>Response Processing</b> = Success Status Code Range or Failure Status Code Range; Qualifying status codes. Format: 200-299,503.</p>
<p>Output Type</p>	<p>If <b>Response Processing</b> = 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.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Text</li> <li>• XML</li> <li>• JSON</li> </ul> <p>Default is Text.</p>
<p>Path Expression</p>	<p>XPath Expression (if <b>Output Type</b> = XML) or JSON Path Expression (if <b>Output Type</b> = JSON) to be used when evaluating the response output.</p>

Strategy	<p>If <b>Output Type</b> = XML or JSON; Strategy to take when applying the condition <b>Operator</b> and <b>Value</b> against the <b>Path Expression</b> matches.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Match Any</li> <li>• Match All</li> <li>• Match None</li> <li>• Count</li> </ul> <p>Default is Match Any.</p>
Operator	<p>If <b>Response Processing</b> = Success Output Contains or Failure Output Contains; Condition operator to evaluate in combination with the specified condition <b>Value</b>.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• =</li> <li>• !=</li> <li>• &gt;</li> <li>• &gt;=</li> <li>• &lt;</li> <li>• &lt;=</li> <li>• regex</li> </ul> <p>Default is =.</p>
Value	<p>If <b>Response Processing</b> = Success Output Contains or Failure Output Contains; Condition value to evaluate in combination with the specified condition <b>Operator</b>.</p>
Auto Cleanup	<p>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.</p>
<b>Wait / Delay Options</b>	<p>This section contains specifications for waiting to start and/or delaying on start the task.</p>
Wait To Start	<p>Amount of time to wait before starting a task from the time that it was launched.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Time</li> <li>• Relative Time</li> <li>• Duration</li> <li>• Seconds</li> </ul>
Wait Time	<p>If <b>Wait To Start</b> = Time or Relative Time; Number of hours and minutes to wait before starting the task.</p>

<p>Wait Day Constraint</p>	<p>If <b>Wait Time</b> = Time or Relative Time; Specification for whether or not to advance the wait time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- <ul style="list-style-type: none"> <li>• If <b>Wait To Start</b> = 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.</li> <li>• If <b>Wait To Start</b> = 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.</li> </ul> </li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> </ul> <p>Default is – None --.</p>
<p>Wait Duration</p>	<p>If <b>Wait To Start</b> = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.</p>
<p>Wait Duration In Seconds</p>	<p>If <b>Wait To Start</b> = Seconds; Number of seconds to wait before starting the task.</p>
<p>Delay On Start</p>	<p>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.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None –</li> <li>• Duration</li> <li>• Seconds</li> </ul>

Delay Duration	If <a href="#">Delay On Start</a> = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If <a href="#">Delay On Start</a> = Seconds; Number of seconds to delay after starting the task.
<b>Time Options</b>	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 <a href="#">Late Start Type</a> ). To determine whether a task instance started late, <a href="#">open the task instance</a> and locate the <a href="#">Started Late</a> field; the field is checked if the instance started after the specified time. The <a href="#">Started Late</a> 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 <a href="#">Late Start</a> fields.
Late Start Type	Required if <a href="#">Late Start</a> is enabled.  Options: <ul style="list-style-type: none"> <li>• Time - Flag the task if it starts after the specified time.</li> <li>• Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific <a href="#">start time</a>.</li> </ul>
Late Start Time	If <a href="#">Late Start Type</a> = Time; Time after which the task <a href="#">start time</a> is considered late. Use HH:MM, 24-hour time.

<p>Late Start Day Constraint</p>	<p>If <a href="#">Late Start Type</a> = Time; Specification for whether or not to advance the late start time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Late Start Nth Amount</p>	<p>If <a href="#">Late Start Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Late Start Duration</p>	<p>If <a href="#">Late Start Type</a> = Duration; Duration (amount of relative time) after which the task is considered to have started late.</p> <p>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.</p> <p>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 <a href="#">Hold on Start</a> 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.</p>
<p>Late Finish</p>	<p>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 <a href="#">Late Finish Type</a>). To determine whether a task instance finished late, <a href="#">open the task instance</a> and locate the <a href="#">Finished Late</a> 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.</p>

Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the <a href="#">Late Finish</a> fields.
Late Finish Type	<p>Required if <a href="#">Late Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes after the specified time (see <a href="#">Late Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see <a href="#">Late Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Late Finish Time	If <a href="#">Late Finish Type</a> = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	<p>If <a href="#">Late Finish Type</a> = Time; Specification for whether or not to advance the late finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
Late Finish Nth Amount	If <a href="#">Late Finish Day Constraint</a> = Nth Day; Number of days to advance.

Late Finish Duration	If <a href="#">Late Finish Type</a> = 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 <a href="#">Early Finish Type</a> ). To determine whether a task instance finished early, <a href="#">open the task instance</a> and locate the <a href="#">Finished Early</a> 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 <a href="#">Early Finish</a> fields.
Early Finish Type	<p>Required if <a href="#">Early Finish</a> is enabled.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Time - Flag the task if it finishes before the specified time (see <a href="#">Early Finish Time</a>).</li> <li>• Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see <a href="#">Early Finish Duration</a>). The task must have a specific finish time.</li> </ul>
Early Finish Time	If <a href="#">Early Finish Type</a> = 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.



<p>Early Finish Day Constraint</p>	<p>If <a href="#">Early Finish Type</a> = Time; Specification for whether or not to advance the early finish time to another day.</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance.</li> <li>• Same Day Do not advance day.</li> <li>• Next Day Advance to the next day.</li> <li>• Next Business Day Advance to the next business day.</li> <li>• Sunday If today is not Sunday, advance to next Sunday.</li> <li>• Monday If today is not Monday, advance to next Monday.</li> <li>• Tuesday If today is not Tuesday, advance to next Tuesday.</li> <li>• Wednesday If today is not Wednesday, advance to next Wednesday.</li> <li>• Thursday If today is not Thursday, advance to next Thursday.</li> <li>• Friday If today is not Friday, advance to next Friday.</li> <li>• Saturday If today is not Saturday, advance to next Saturday.</li> <li>• Nth Day Advance to a specific number of days in the future.</li> </ul> <p>Default is – None --.</p>
<p>Early Finish Nth Amount</p>	<p>If <a href="#">Early Finish Day Constraint</a> = Nth Day; Number of days to advance.</p>
<p>Early Finish Duration</p>	<p>If <a href="#">Early Finish Type</a> = Duration; Shortest amount of time this task instance should take to run.</p>
<p><b>Retry Options</b></p>	<p>This section contains specifications for retrying the task.</p>
<p>Maximum Retries</p>	<p>User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.</p>
<p>Retry Indefinitely</p>	<p>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 <a href="#">Maximum Retries</a> field.</p>
<p>Retry Interval (Seconds)</p>	<p>User-defined; number of seconds between each retry.</p>

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	<p>User-defined; If the task instance is in the <a href="#">Failed status</a>, indicates whether or not the following will be suppressed until all scheduled retry attempts (a <a href="#">Maximum Retries</a> value has been entered or <a href="#">Retry Indefinitely</a> has been enabled) have been made:</p> <ul style="list-style-type: none"> <li>• All Actions (<a href="#">Abort</a>, <a href="#">Email Notification</a>, <a href="#">Set Variable</a>, <a href="#">SNMP Notification</a>, and <a href="#">System Operation</a>) defined for the task instance on a Failed status.</li> <li>• Workflow conditional path processing; any Successors waiting on a failure path will not be released.</li> <li>• Task Monitors will not be notified of the Failed status. Also, any <a href="#">Task Monitor</a> task that has a <a href="#">Time Scope</a> 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 <b>Suppress Intermediate Failures</b> has been enabled.</li> <li>• Any Workflow containing the Failed task instance will not transition to the <a href="#">Running/Problems</a> status.</li> </ul>
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.
<b>Critical Path Options</b>	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 <a href="#">CP Duration Unit</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> 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 <a href="#">CP Duration</a> . If the Controller is unable to resolve <a href="#">CP Duration</a> or it resolves to an invalid value, <a href="#">CP Duration</a> will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	<p>Type of CP Duration; used in conjunction with the <a href="#">CP Duration</a> field. For example, for a CP Duration of two minutes, specify 2 in the <a href="#">CP Duration</a> field and select <b>Minutes</b> in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Seconds</li> <li>• Minutes</li> <li>• Hours</li> </ul> <p>Default is Minutes.</p>
<b>Workflow Execution Options</b>	This section contains Execution Restriction specifications for the task if it is within a Workflow.

<p>Execution Restriction</p>	<p>Specification for whether or not there is a restriction for this task to be run, skipped, or held.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• -- None -- No restriction for this task.</li> <li>• Run Restriction for when this task will be run.</li> <li>• Skip Restriction for when this task will be skipped.</li> <li>• Hold Restriction for when this task will be held.</li> </ul> <p>If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the <a href="#">Restriction Period</a> is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the <a href="#">Restriction Period</a> or Execution Restriction is Run and the date is not within the <a href="#">Restriction Period</a>. Execution Restriction can be set to Skip with a <a href="#">Restriction Period</a> of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.</p>
<p>Restriction Period</p>	<p>If <a href="#">Execution Restriction</a> = Run, Skip, or Hold; Period of time when the task is restricted.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• – None – No period of restriction for this task.</li> <li>• Before Restriction is valid if the date is before the <a href="#">Before Date</a> value.</li> <li>• After Restriction is valid if the date is after the <a href="#">After Date</a> value.</li> <li>• Span Restriction is valid if the date is before the <a href="#">Before Date</a> value and after <a href="#">After Date</a> value.</li> <li>• On Restriction is valid if the date is one of the <a href="#">Date List</a> values.</li> </ul>
<p>Before Date</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Date before which the restriction is valid.</p>
<p>Before Time</p>	<p>If <a href="#">Restriction Period</a> = Before or Span; Time on the selected date before which the restriction is valid.</p>
<p>After Date</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Date after which the restriction is valid.</p>
<p>After Time</p>	<p>If <a href="#">Restriction Period</a> = After or Span; Time on the selected date after which the restriction is valid.</p>
<p>Date List</p>	<p>If <a href="#">Restriction Period</a> = On; Date(s) on which the restriction is valid.</p>
<p><b>Statistics</b></p>	<p>This section contains time-related statistics for the task instance.</p>

User Estimated End Time	System-supplied; if the user entered information into the <a href="#">User Estimated Duration</a> 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.
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.
Shortest Estimated End Time	System-supplied; shortest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Longest Estimated End Time	System-supplied; longest 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 <a href="#">critical path duration</a> .
<b>Metadata</b>	This section contains <a href="#">Metadata</a> 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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Force Finish</b>	See <a href="#">Force Finishing a Task</a> .
<b>Hold</b>	Places the task instance on Hold (see <a href="#">Putting a Task on Hold</a> ).
<b>Skip</b>	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See <a href="#">Skipping a Task</a> .
<b>Re-run</b>	See <a href="#">Re-running a Task</a> .

<b>View Parent</b>	Displays the task instance Details for the parent Workflow of this task instance.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task instance.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
<b>Virtual Resources</b>	Lists all <a href="#">Virtual Resources</a> to which this task is assigned.
<b>Exclusive Requests</b>	Lists all records in the <a href="#">Exclusive Requests</a> table ( <code>ops_exclusive_order</code> ) for this task instance.
<b>Notes</b>	Lists all <a href="#">notes</a> 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.

## 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:

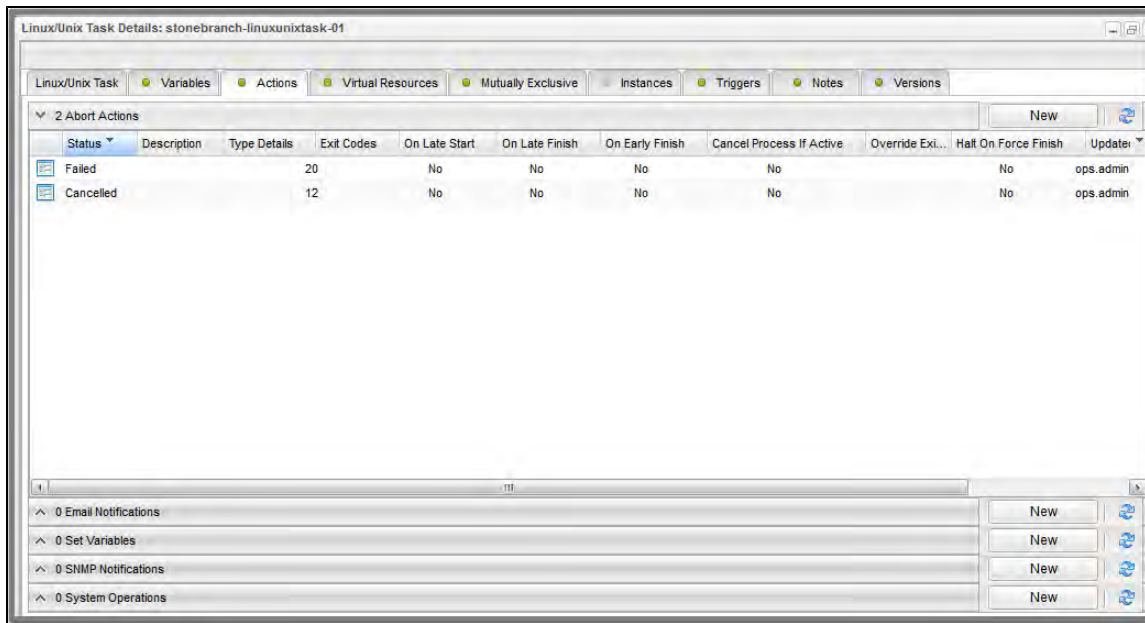
- Status or statuses of the task instance
- Exit code(s) generated by the program (along with at least one status)
- Late start
- Early or late finish

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.

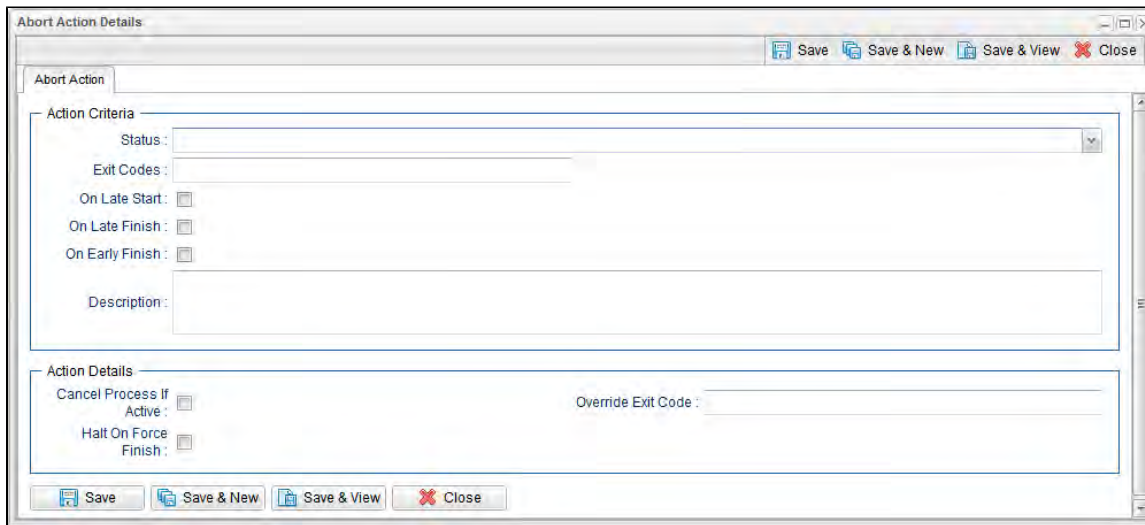
### Creating an Abort Action

**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.



**Step 3** Click the **New** button that displays on the Abort Actions row. The Abort Action Details pop-up displays.



**Step 4** Using the field descriptions, below, as a guide, complete the fields as needed.




<b>Step 5</b>	Click a <b>Save</b> button to save the record in the Controller database.
<b>Step 6</b>	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
<b>Action Criteria</b>	This section contains criteria for performing the action.
Action Inheritance	For Workflow tasks only; the records that this action applies to. Options: <ul style="list-style-type: none"> <li>• <b>Self</b> The action applies only to the workflow; it is not inherited by its children tasks. For example, if the action is defined for the <b>Defined</b> status, when the workflow where the action is specified transitions into the <b>Defined</b> status, the action will run for the workflow. When children tasks within this workflow transition into the <b>Defined</b> status, the action will not run.</li> <li>• <b>Self/Children</b> 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 <b>Defined</b> status, the action will run.</li> <li>• <b>Children</b> 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 <b>Defined</b> status, the action will run. However, when the workflow where this action is specified transitions into the <b>Defined</b> status, this action will not run.</li> </ul>
Status	The <b>status</b> 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.
Description	Description of this action.
<b>Action Details</b>	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 <b>Force Finish (Halt)</b> a running task instance, rather than just <b>Force Finish</b> .
Override Exit Code	<p>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.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b> If you run the Abort Action against a task that has not yet started, the task will be skipped, and the <b>Override Exit Code</b> is not applicable.</p> </div>
<b>Buttons</b>	This section identifies the buttons displayed above and below the Action Details that let you perform various actions.
<b>Save</b>	Saves a new Action record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new record.
<b>Update</b>	Saves updates to the record.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	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

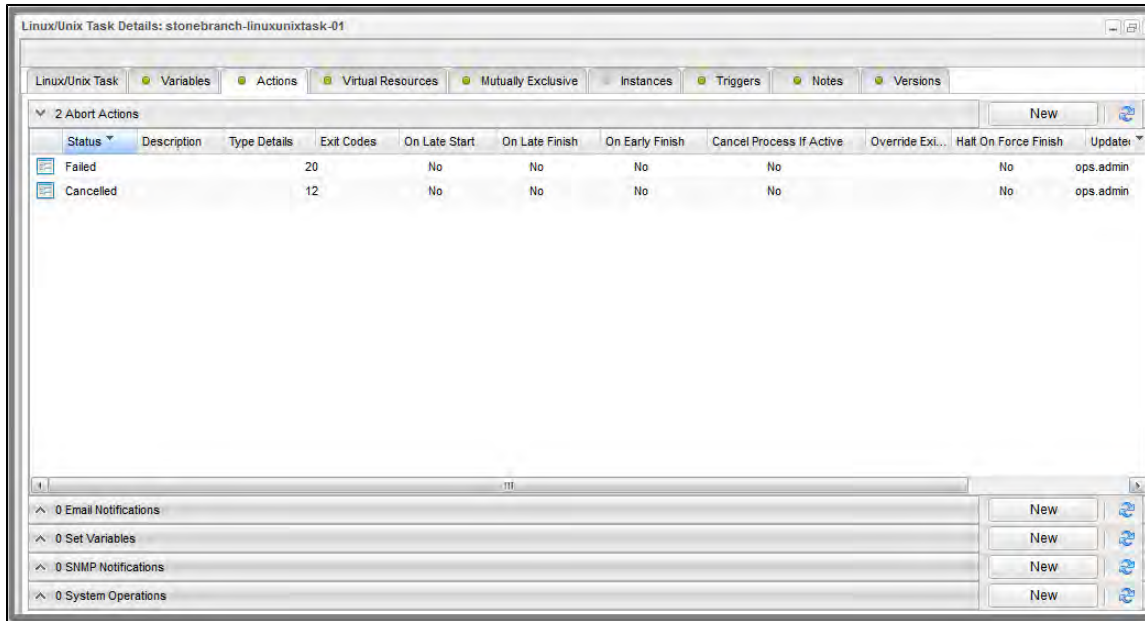
You also can generate notifications based on the status of:

- [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.



**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 :

Description :

Action Details

Email Template :  Email Connection :

Email Template Variable :

Reply-To :

To :

Cc :

Bcc :

Subject :

Body :

Report :  Report Variable :

Attach Standard Output :

Attach Standard Error :

Attach File :

Save Save & New Save & View Close

For **Workflow tasks**, the Email Notification Details includes the **Action Inheritance** field:


- 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
<b>Action Criteria</b>	This section contains criteria for performing the action.
Action Inheritance	<p>For Workflow tasks only; the records that this action applies to.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• 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 <a href="#">Defined</a> status, when the workflow where the action is specified transitions into the <a href="#">Defined</a> status, the action will run for the workflow. When children tasks within this workflow transition into the <a href="#">Defined</a> status, the action will not run.</li> <li>• 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 <a href="#">Defined</a> status, the action will run.</li> <li>• 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 <a href="#">Defined</a> status, the action will run. However, when the workflow where this action is specified transitions into the <a href="#">Defined</a> status, this action will not run.</li> </ul>
Status	The <a href="#">status</a> 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.
Description	Description of this action.
<b>Action Details</b>	This section contains additional details about the action.



<p>Email Template</p>	<p>Name of an <a href="#">Email template</a> 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.</p> <p>Every <a href="#">Email template</a> specifies an Email connection. If you do not specify an Email template in this field, you must specify an Email connection in the <a href="#">Email Connection</a> field.</p> <p>If you specify both an Email template (in this field) and an <a href="#">Email Connection</a>, the Email server specified in the <a href="#">Email Connection</a> field overrides the Email server specified in this field.</p> <p>(Any information specified in an Email task overrides what is specified in an Email template.)</p>
<p>Email Template Variable</p>	<p>Indication of whether the <a href="#">Email Template</a> field is a reference field for selecting a specific <a href="#">Email Template</a> (unchecked) or a text field for specifying the <a href="#">Email Template</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div data-bbox="306 521 1919 704" style="background-color: #ffffcc; padding: 10px;"> <p> <b>Note</b>                      When <a href="#">updating multiple Tasks</a>, to change from using a Email Template reference to using a Email Template variable, you must change the <b>Email Template Variable</b> field to <b>Yes</b> and specify the Email Template variable in the <b>Email Template Unresolved</b> field. Conversely, to change from using an Email Template variable to using an Email Template reference, you must change the <b>Email Template Variable</b> field to <b>No</b> and specify the Email Template reference in the <b>Email Template</b> field.</p> </div>
<p>Email Connection</p>	<p>Required if an Email Template is not specified in the <a href="#">Email Template</a> field; Name of an outgoing <a href="#">Email Connection</a> (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).</p> <p>If you specify both an <a href="#">Email Template</a> and an Email Connection (in this field), the Email Connection specified in this field overrides the Email Connection specified in the <a href="#">Email Template</a> field.</p>
<p>Reply-To</p>	<p>Email address of the sender. Use commas to separate multiple recipients. <a href="#">Variables and functions</a> supported.</p>
<p>To</p>	<p>Email address of the recipient. Use commas to separate multiple recipients. <a href="#">Variables and functions</a> supported.</p>
<p>CC</p>	<p>Email address of the party being sent a copy of the email, if any. Use commas to separate multiple recipients. <a href="#">Variables and functions</a> supported.</p>
<p>BCC</p>	<p>Email address of the party being sent a blind (hidden) copy of the email, if any. Use commas to separate multiple recipients. <a href="#">Variables and functions</a> supported.</p>
<p>Subject</p>	<p>Subject line of the email. <a href="#">Variables and functions</a> supported.</p>

Body	Text of the email message. <a href="#">Variables and functions</a> supported. If both the email template and the email task contain text in the body, the text is appended.
Report	<a href="#">Report</a> to attach to this notification.
Report Variable	Indication of whether the <a href="#">Report</a> field is a reference field for selecting a specific <a href="#">Report</a> (unchecked) or a text field for specifying the <a href="#">Report</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a> .
Attach Standard Output	For <a href="#">Agent-based tasks</a> only; attach any standard output generated by the associated task.
Attach Standard Error	For <a href="#">Agent-based tasks</a> only; attach standard error data generated by the associated task.
Attach File	For <a href="#">Agent-based tasks</a> only (except z/OS); 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 <a href="#">z/OS tasks</a> only; attach any job logs generated by the associated task.
Start Line	Attach data beginning at the line indicated. <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is <b>-1</b>, data will be retrieved starting at the end of the file.</li> </ul>
Number of Lines	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 <a href="#">Retrieve Output Default Maximum Lines</a> Universal Controller system property.
Scan Text:	Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the <b>Number of Lines</b> 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	For <a href="#">Attach File</a> only; path and file name of the file you want to attach to the email notification.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Action Details that let you perform various actions.
<b>Save</b>	Saves a new Action record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redispays empty Details so that you can create another new record.

<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new record.
<b>Update</b>	Saves updates to the record.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	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

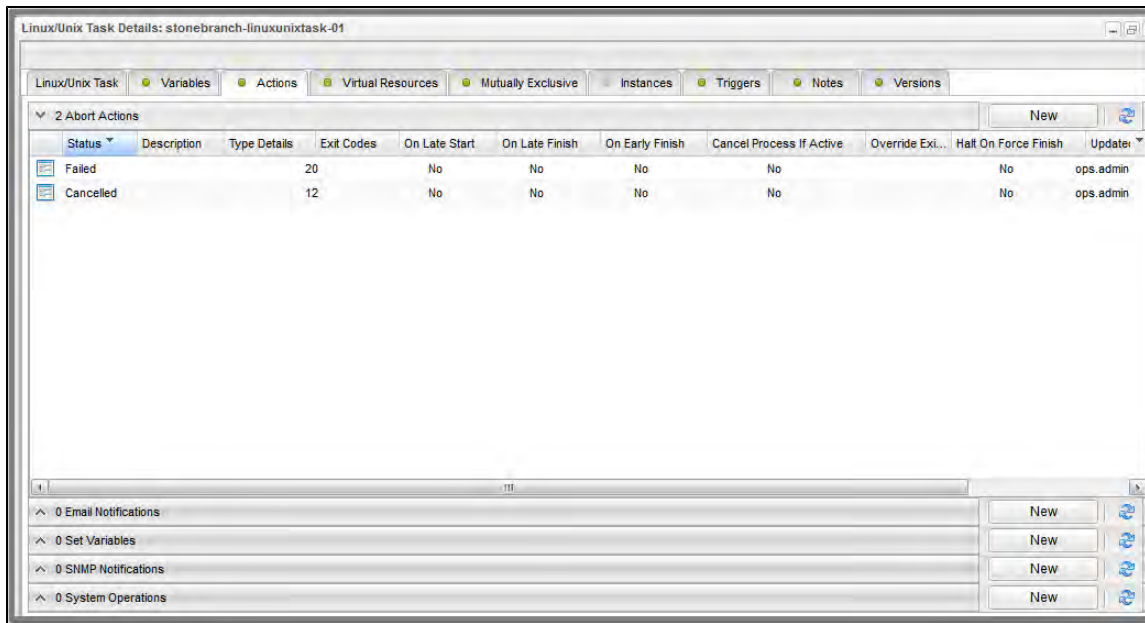
In order to generate SNMP notifications, there must be an [SNMP Manager](#) defined, which provides the server name and other pertinent information of the SNMP Manager that will receive the notification.

You also can generate notifications based on the status of [Agents and Agent clusters](#), [Cluster nodes](#), and [OMS Servers](#).

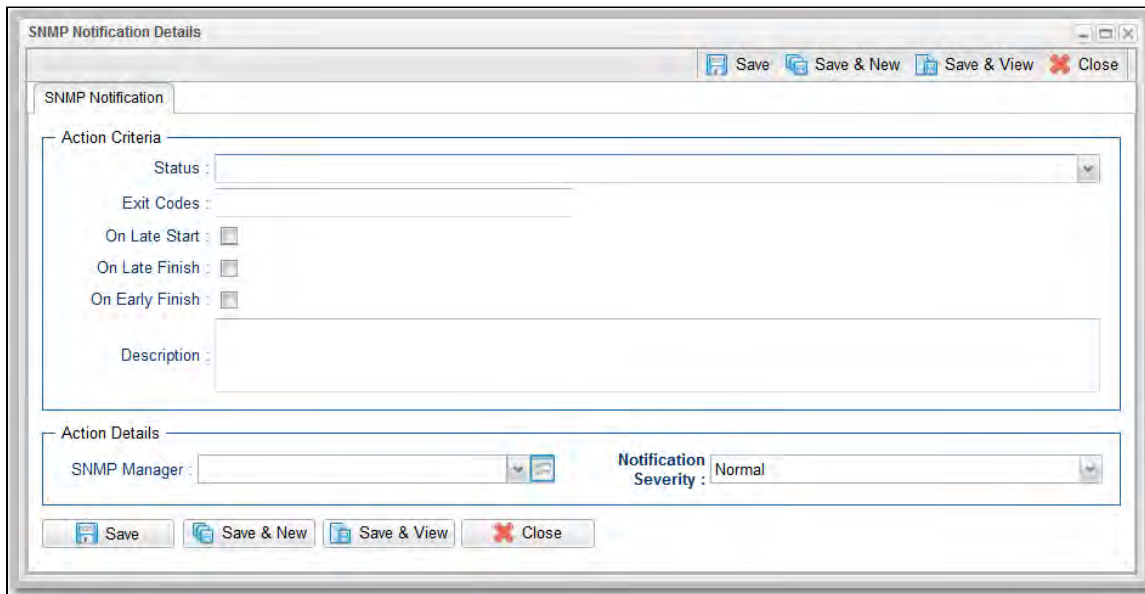
### Creating an SNMP Notification

**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.



**Step 3** Click the **New** button that displays on the SNMP Notifications row. The SNMP Notification Details pop-up displays.



<b>Step 4</b>	Using the <a href="#">field descriptions</a> , below, as a guide, complete the fields as needed.
<b>Step 5</b>	Click a <b>Save</b> button to save the record in the Controller database.
<b>Step 6</b>	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
<b>Action Criteria</b>	This section contains criteria for performing the action.
Action Inheritance	<p>For Workflow tasks only; the records that this action applies to.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Self</b> The action applies only to the workflow; it is not inherited by its children tasks. For example, if the action is defined for the <a href="#">Defined</a> status, when the workflow where the action is specified transitions into the <a href="#">Defined</a> status, the action will run for the workflow. When children tasks within this workflow transition into the <a href="#">Defined</a> status, the action will not run.</li> <li>• <b>Self/Children</b> 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 <a href="#">Defined</a> status, the action will run.</li> <li>• <b>Children</b> 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 <a href="#">Defined</a> status, the action will run. However, when the workflow where this action is specified transitions into the <a href="#">Defined</a> status, this action will not run.</li> </ul>
Status	The <a href="#">status</a> 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.
Description	Description of this SNMP notification.



<b>Action Details</b>	This section contains additional details about the action.
<b>SNMP Manager</b>	The <b>SNMP Manager</b> 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.
<b>Notification Severity</b>	Severity of this notification.  Options: <ul style="list-style-type: none"> <li>• Normal (1)</li> <li>• Warning (2)</li> <li>• Minor (3)</li> <li>• Major (4)</li> <li>• Critical (5)</li> </ul>
<b>Buttons</b>	This section identifies the buttons displayed above and below the Action Details that let you perform various actions.
<b>Save</b>	Saves a new Action record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new record.
<b>Update</b>	Saves updates to the record.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	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

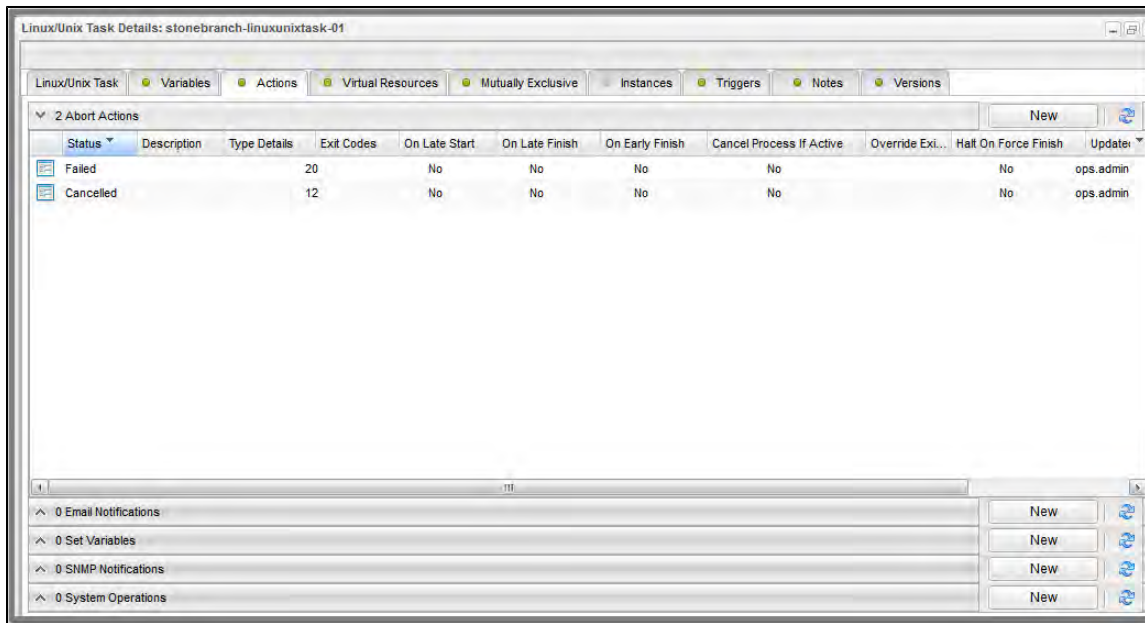
You can create one or more System Operations for any Controller task. For Workflow tasks, you can also specify whether you want a System Operation action to apply to the workflow itself, the workflow and/or its tasks, or to the tasks only.

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.

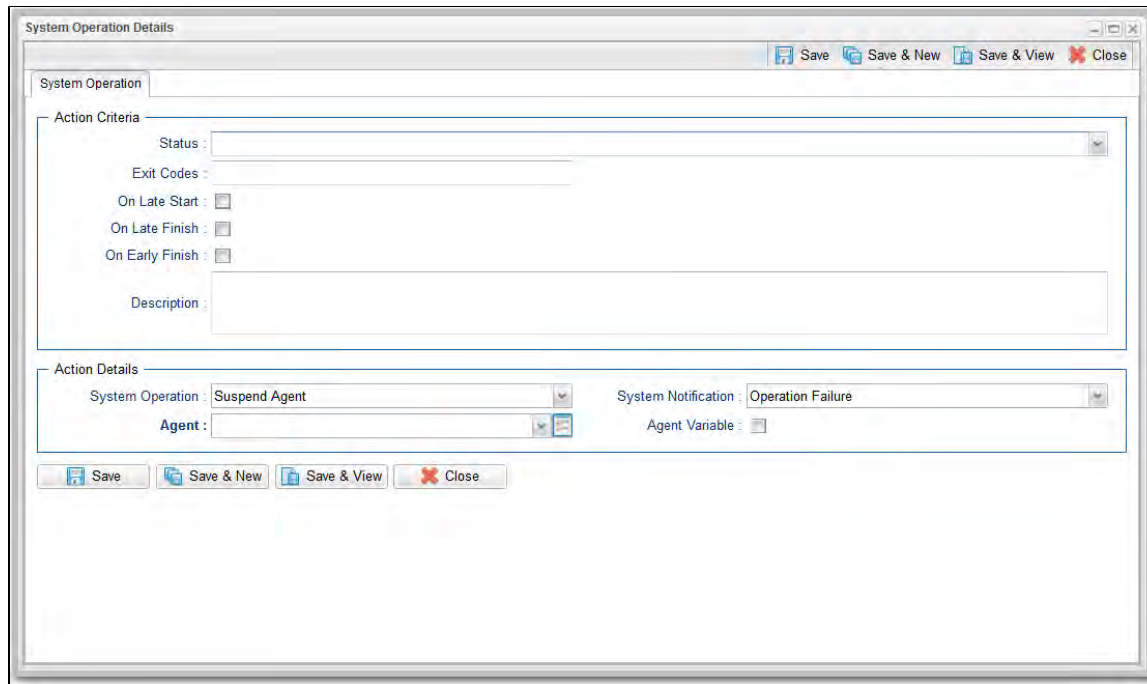
### Creating a System Operation

**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.



**Step 3** Click the **New** button that displays on the System Operations row. The System Operation Details pop-up displays.



**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.
Type Details	Displays - on the System Operations actions list - the <a href="#">type of System Operation</a> defined in this action.

Action Inheritance	<p>For Workflow tasks only; the records that this action applies to.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• 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 <a href="#">Defined</a> status, when the workflow where the action is specified transitions into the <a href="#">Defined</a> status, the action will run for the workflow. When children tasks within this workflow transition into the <a href="#">Defined</a> status, the action will not run.</li> <li>• 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 <a href="#">Defined</a> status, the action will run.</li> <li>• 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 <a href="#">Defined</a> status, the action will run. However, when the workflow where this action is specified transitions into the <a href="#">Defined</a> status, this action will not run.</li> </ul>
Status	<p>The <a href="#">status</a> of this task, by itself or together with an exit code, that will trigger this trigger a System Operation action. You can specify as many statuses as needed.</p>
Exit Codes	<p>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.</p>
On Late Start	<p>Generates the action or notification if the task started late, based on the Late Start Time specified in the task.</p>
On Late Finish	<p>Generates the action or notification if the task finishes late, based on the Late Finish time specified in the task.</p>
On Early Finish	<p>Generates the action or notification if the task finishes early, based on the Early Finish Time specified in the task.</p>
Description	<p>Description of this System Operation.</p>
<b>Action Details</b>	<p>This section contains additional details about the action.</p>

<p>System Operation</p>	<p>Specific system operation to perform.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Suspend Agent</li> <li>• Resume Agent</li> <li>• Suspend Agent Cluster</li> <li>• Resume Agent Cluster</li> <li>• Suspend Cluster Membership</li> <li>• Resume Cluster Membership</li> <li>• Set Agent Task Execution Limit</li> <li>• Set Cluster Task Execution Limit</li> <li>• Set Virtual Resource Limit</li> <li>• Run Task Instance Command</li> <li>• Launch Task</li> <li>• Trigger Now</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      For the Suspend Agent and Resume Agent operations, the user must have the following <a href="#">Agent permissions</a>:</p> <ul style="list-style-type: none"> <li>• Explicit <a href="#">Read permission</a>, if the <a href="#">Strict Business Service Membership Read Constraints</a> Universal Controller system property is true.</li> <li>• Suspend Agent and Resume Agent commands permission.</li> </ul> <p>For the Suspend Agent Cluster, Resume Agent Cluster, Suspend Agent Cluster Membership, and Resume Agent Cluster Membership operations, the user must have the following <a href="#">Agent Cluster permissions</a>:</p> <ul style="list-style-type: none"> <li>• Explicit <a href="#">Read permission</a>, if the <a href="#">Strict Business Service Membership Read Constraints</a> Universal Controller system property is true.</li> <li>• Suspend Agent, Resume Agent, Suspend Agent Membership, and Resume Agent Membership commands permission.</li> </ul> </div>
<p>System Notification</p>	<p>Status of the specified system operation (see above) that will trigger a system notification.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None</li> <li>• Operation Failure (default)</li> <li>• Operation Success/Failure</li> <li>• Operation Success</li> </ul> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b>                      The Controller must be <a href="#">configured for system notifications</a> in order for system notifications to be triggered.</p> </div>
<p>Agent</p>	<p>If <a href="#">System Operation</a> 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.</p>
<p>Agent Variable</p>	<p>If <a href="#">System Operation</a> is Suspend Agent, Resume Agent, Suspend Cluster Membership, Resume Cluster Membership, or Set Agent Task Execution Limit:</p> <p>If enabled, the <a href="#">Agent</a> 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: <code>\${variable name}</code>. The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p>

Agent Cluster	If <a href="#">System Operation</a> 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 <a href="#">System Operation</a> is Suspend Agent Cluster, Resume Agent Cluster, Suspend Cluster Membership, Resume Cluster Membership, or Set Cluster Task Execution Limit; If enabled, the <a href="#">Agent Cluster</a> 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 <a href="#">Variables and Functions</a> .
Task Execution Limit	If <a href="#">System Operation</a> 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	<p>If <a href="#">System Operation</a> is Set Virtual Resource Limit; Virtual resource for which a virtual resource limit is to be set.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> <b>Note</b>                      If the <a href="#">Strict Business Service Membership Read Constraints</a> Universal Controller system property is true, the drop-down list displays only Virtual Resources for which the user has explicit <a href="#">Read permission</a>.</p> </div>
Virtual Resource Variable	If <a href="#">System Operation</a> is Set Virtual Resource Limit; the <a href="#">Virtual Resource</a> 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 <a href="#">Variables and Functions</a> .
Limit	<p>If <a href="#">System Operation</a> 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.</p> <p>If <a href="#">System Operation</a> is Set Virtual Resource Limit; Virtual resource limit to be set for the specified virtual resource.</p>



<p>Command</p>	<p>If <a href="#">System Operation</a> is Run Task Instance Command; Type of <a href="#">task instance command</a> to run.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Cancel</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Force Finish/Cancel</li> <li>• Force Finish/Cancel (Halt)</li> <li>• Skip</li> <li>• Skip Path</li> <li>• Unskip</li> <li>• Hold</li> <li>• Release</li> <li>• Release Recursive</li> <li>• Clear All Dependencies</li> <li>• Clear Exclusive</li> <li>• Clear Predecessors</li> <li>• Clear Resources</li> <li>• Clear Timewait</li> <li>• Re-run</li> </ul> <div style="background-color: #ffe6e6; padding: 10px; margin-top: 10px;"> <p> <b>Caution</b>              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 <a href="#">System Operation</a> 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 <a href="#">System Notification / Email Notification</a> that sends an email if the task instance ends in Failed status, the emails could flood the recipient's mail server.</p> </div>
<p>Workflow Instance Name Condition</p>	<p>If <a href="#">System Operation</a> 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.</p> <p>The action will be performed only on a task instance in a parent workflow task instance meeting the specified condition value.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Equals</li> <li>• Starts With</li> <li>• Contains</li> <li>• Ends With</li> </ul> <p>For the selected condition (the default is Equals), a corresponding field displays (see below) that allows you to enter a value for that condition.</p>
<p>Workflow Instance Name Equals</p>	<p>If <a href="#">Workflow Instance Name Condition</a> = Equals; Exact name of a parent workflow task instance containing the task. <a href="#">Variables</a> are supported.</p>
<p>Workflow Instance Name Starts With</p>	<p>If <a href="#">Workflow Instance Name Condition</a> = Starts With; Character string at the start of the name of a parent workflow task instance containing the task. <a href="#">Variables</a> are supported.</p>
<p>Workflow Instance Name Contains</p>	<p>If <a href="#">Workflow Instance Name Condition</a> = Contains; Character string in the name of a parent workflow task instance containing the task. <a href="#">Variables</a> are supported.</p>

Workflow Instance Name Ends With	If <a href="#">Workflow Instance Name Condition</a> = Ends With; Character string at the end of the name of a parent workflow task instance containing the task. <a href="#">Variables</a> are supported.
Instance Lookup Option	If <a href="#">System Operation</a> is Run Task Instance Command; Specification for how to search for the task instance to run a command against. Options: <ul style="list-style-type: none"> <li>• Instance Name</li> <li>• Instance Name/Task</li> <li>• Instance Id</li> <li>• Task</li> </ul>
Instance Name	If <a href="#">Instance Lookup Option</a> is Instance Name or Instance Name/Task; Required. Name of the task instance to run the command against. <a href="#">Variables</a> supported.
Instance Criteria	If <a href="#">Instance Lookup Option</a> is Instance Name, Instance Name/Task, or Task; Additional criteria for selecting a specific task instance if multiple task instances have matching names. <ul style="list-style-type: none"> <li>• Oldest Active Instance (default)</li> <li>• Newest Active Instance</li> <li>• Newest Instance (Unskip command only)</li> <li>• Oldest Instance (Unskip command only)</li> </ul> <p>(An Active task instance is an instance that is not in any of these statuses: Skipped, Finished, Success.)</p>
Task Reference	<ul style="list-style-type: none"> <li>• If <a href="#">Instance Lookup Option</a> is Instance Name/Task or Task; Required. Name of the task for which the task instance was run.</li> <li>• If <a href="#">System Operation</a> is Launch Task; Name of the task to launch.</li> </ul>
Task Reference Variable	If <a href="#">Instance Lookup Option</a> is Instance Name/Task or Task, or if <a href="#">System Operation</a> 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: <code>\${variable name}</code> . The variable must be a supported type as described in <a href="#">Variables and Functions</a> .
Instance Id	If <a href="#">Instance Lookup Option</a> 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 <code>\$(ops_task_id)</code> variable or <code>\$_siblingid('mytask')</code> function to get the instance Id.
Trigger Reference	If <a href="#">System Operation</a> is Trigger Now; Name of the trigger.
Trigger Reference Variable	If <a href="#">System Operation</a> is Trigger Now; Indication of whether the <b>Trigger Reference</b> field is a reference field for selecting a specific <a href="#">Trigger</a> (unchecked) or is a text field for specifying the trigger as a variable (checked). For a variable, use the format: <code>\${variable name}</code> . The variable must be a supported type as described in <a href="#">Variables and Functions</a> .
Override Variables	If <a href="#">System Operation</a> is Launch Task or Trigger Now; Variables to override.
Override Variables Resolution Disabled	If <a href="#">System Operation</a> is Launch Task or Trigger Now; Indication of whether or not Override Variables resolution should be disabled to allow for passing unresolved variable values. <ul style="list-style-type: none"> <li>• 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.</li> <li>• If disabled (unchecked), Override Variables will be resolved prior to the execution of the Launch Task or Trigger Now System Operation.</li> </ul>
<b>Buttons</b>	This section identifies the buttons displayed above and below the Action Details that let you perform various actions.
<b>Save</b>	Saves a new Action record in the Controller database.

<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new record.
<b>Update</b>	Saves updates to the record.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	Closes the Details pop-up of this action.



## 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

- |               |  |
|---------------|--|
| <b>Step 1</b> | From the <a href="#">Automation Center</a> navigation pane, select <b>Tasks &gt; &lt;task type&gt;</b> . The Tasks list for that task type displays. |
| <b>Step 2</b> | Locate the task(s) you want to copy (see <a href="#">Filtering</a> ).  |

**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 Timer Task

Enter a new name for the Timer Task and click Submit.

**Task Name :** Copy Of stonebranch-timertask-01

**Member of Business Services :**

Submit Cancel

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 of** added as a prefix to the Task Name for each task. If a task with that **Copy of** name already exists, a numerical suffix is added to the task name.

## Copying a Task from the Task Details

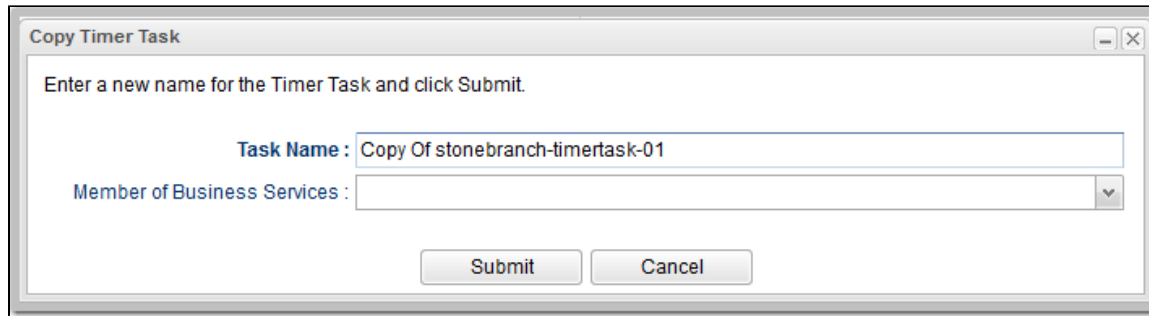
- Step 1** Select a task from a Tasks list. The Task Details for that task displays.

**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 Timer Task

Enter a new name for the Timer Task and click Submit.

Task Name : Copy Of stonebranch-timertask-01

Member of Business Services :

Submit Cancel

**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.

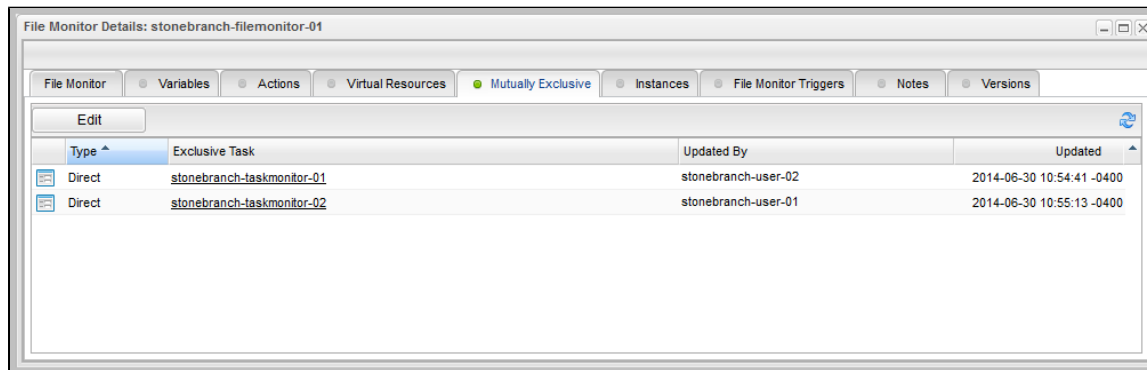
## Setting Mutually Exclusive Tasks

### 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:



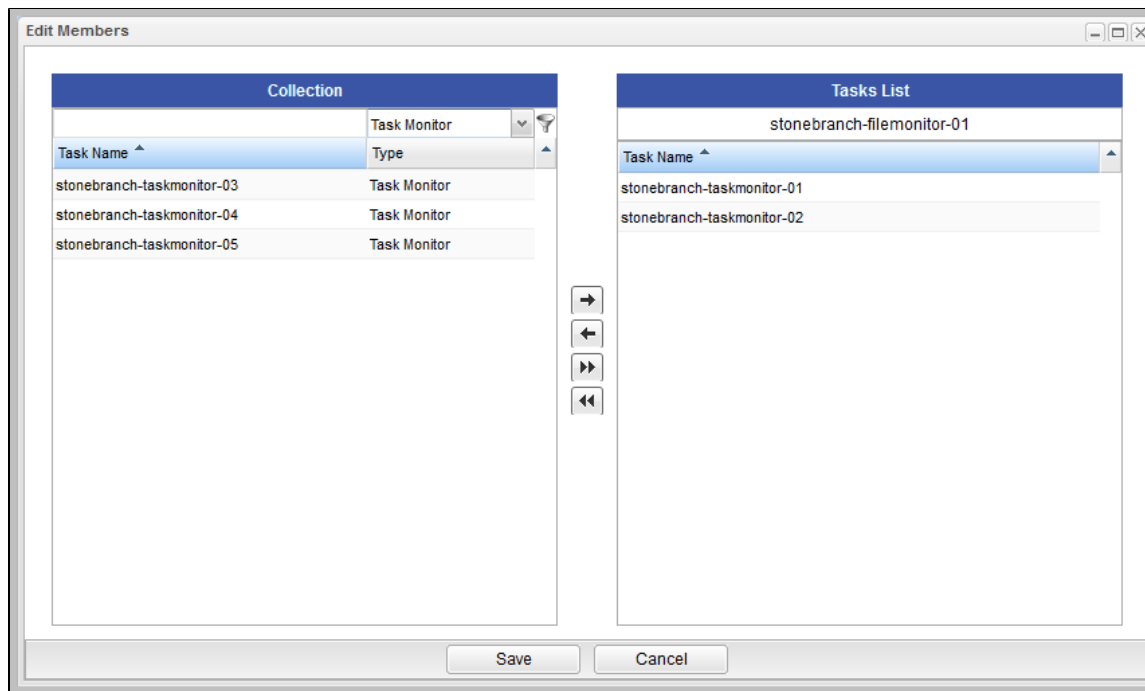
For each **Exclusive Task** on the list, the **Type** field indicates how the mutually exclusive dependency on the **Exclusive Task** was added to this task:

- **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.



- 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:

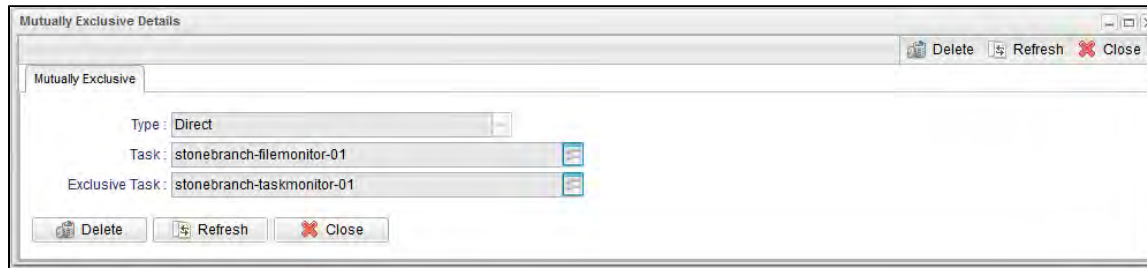
1. To move a single task, double-click it or click it once and then click the > arrow.
2. To move multiple tasks, Ctrl-click them and then click the > arrow.
3. To move all tasks, click the >> arrow.

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.



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

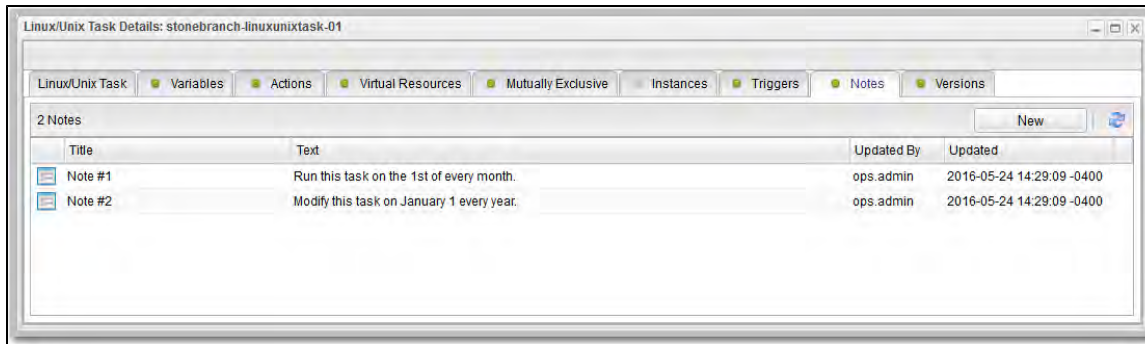
### Introduction

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.

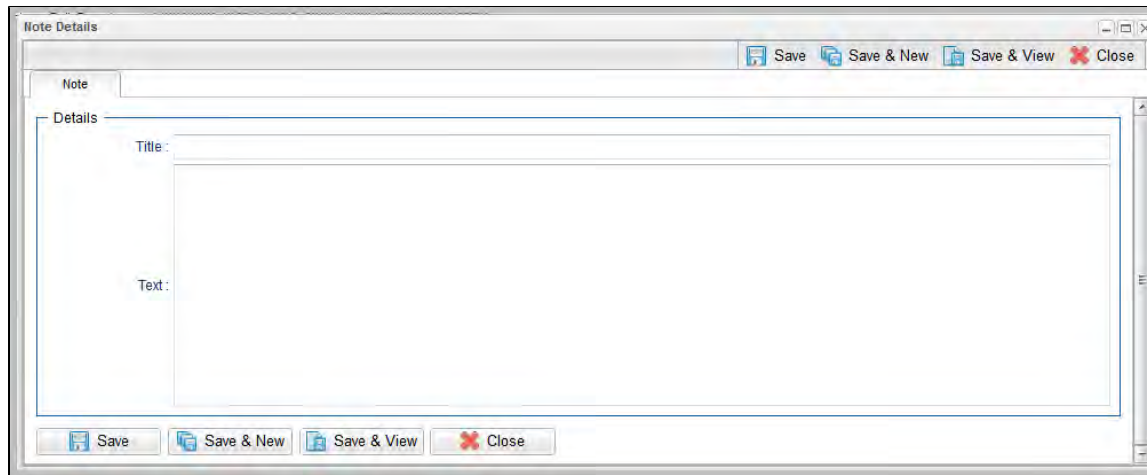
### Adding a Note

**Step 1** Open the task or script to which you want to attach a note.

**Step 2** Click the **Notes** tab. The Notes list displays a list of notes (if any) that have been created for this task or script.



**Step 3** Click the **New** button. The Note Details displays.



**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
<b>Details</b>	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.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Note Details that let you perform various actions.
<b>Save</b>	Saves a new record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new record.
<b>Update</b>	Saves updates to the record.

<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Delete</b>	Deletes the current record.
<b>Close</b>	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

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  - Clear Resource Dependencies of a Task Instance from the Activity Monitor or Task Instances List
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  - 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
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Cancel	Cancels a running task instance (see <a href="#">Cancelling a Task Instance</a> ).
Clear All Dependencies	Workflow tasks only: Clears all dependencies (predecessors, resources, and exclusive) of a task instance (see <a href="#">Clearing All Dependencies of a Task Instance</a> ).
Clear Exclusive	Clears mutually exclusive dependencies of a task instance (see <a href="#">Clearing Mutually Exclusive Dependencies of a Task Instance</a> ).
Clear Predecessors	Workflow tasks only: Clears predecessor dependencies of a task instance (see <a href="#">Clearing Predecessor Dependencies of a Task Instance</a> ).
Clear Resources	Clears resource dependencies of a task instance (see <a href="#">Clearing Resource Dependencies of a Task Instance</a> ).
Clear Time/Wait Delay	Clears all Wait To Start and Delay On Start specifications for this task instance (see <a href="#">Clearing Time Wait/Delay Specifications of a Task Instance</a> ).
Force Finish	Places a task instance into the Finished status (see <a href="#">Force Finishing a Task Instance</a> ).
Force Finish (Halt)	Places a task instance into the Finished status (see <a href="#">Force Finishing (Halt) a Task Instance</a> ).
Force Finish/Cancel	Cancels a task and places it into the Finished status (see <a href="#">Force Finish/Cancelling a Task Instance</a> ).
Force Finish/Cancel (Halt)	Cancels a task and places it into the Finished status (see <a href="#">Force Finish/Cancelling (Halt) a Task Instance</a> ).
Hold	Temporarily prevents a task instance from running (see <a href="#">Putting a Task Instance on Hold</a> ).
Release	Removes a task instance from being on Hold (see <a href="#">Releasing a Task Instance from Hold</a> ).
Release Recursive	Workflow tasks only: Removes a workflow and its task instances from being on Hold (see <a href="#">Releasing a Task Instance from Hold</a> ).
Re-run	Not applicable for Workflow tasks: Re-runs a task instance (see <a href="#">Re-running a Task Instance</a> ).
Retrieve Output	<p><a href="#">Retrieves output</a> (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:</p> <ul style="list-style-type: none"> <li>• Application Control</li> <li>• FTP File Monitor</li> <li>• Linux/Unix</li> <li>• PeopleSoft</li> <li>• SAP</li> <li>• Universal</li> <li>• Universal Command</li> <li>• Windows</li> <li>• z/OS</li> </ul>
Set Completed	Sets a <a href="#">Manual Task</a> 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 <a href="#">Changing the Priority of a Task Instance</a> ).
Set Started	Resets the Started Time of a <a href="#">Manual Task</a> instance.
Skip	Disregards a task instance (see <a href="#">Skipping a Task Instance</a> ).
Skip Path	Disregards a task instance and all of its dependent task instances (see <a href="#">Skipping a Task Instance</a> ).
Unskip	Removes the Skip status of a task instance (see <a href="#">Unskipping a Task Instance</a> ).



## Issuing Commands from the Activity Monitor

Instance Name	Type	Status	Invoked By	Start Time	End Time	Updated
lecu-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: lecu-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: lecu-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: lecu-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: lecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 60	Timer	Skipped	Workflow: lecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 60	Timer	Skipped	Workflow: lecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 30	Timer	Skipped	Workflow: lecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 30	Timer	Skipped	Workflow: lecu-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.

### h2 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.)

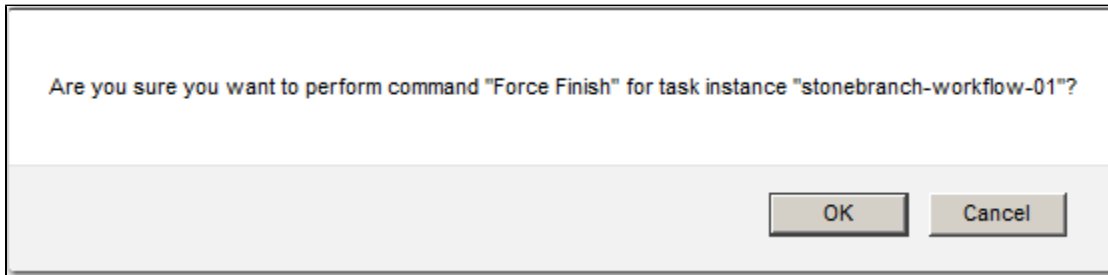
## Issuing Commands from the Workflow Monitor

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**).

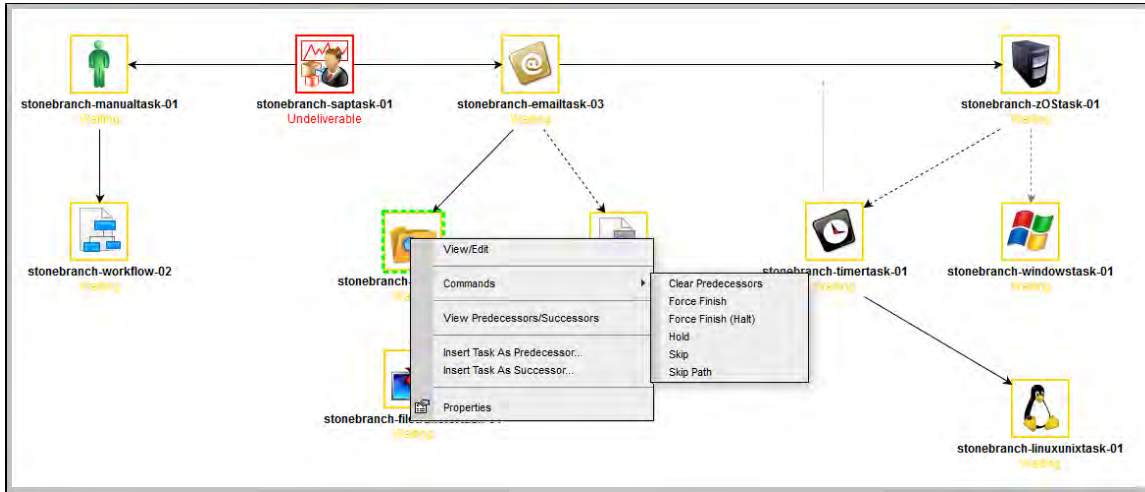
For example:



### Issue a Command Against a Task Instance within the Workflow

<b>Step 1</b>	Right-click the task instance to display a pop-up menu of commands appropriate for the selected task instance.
<b>Step 2</b>	Click <b>Commands</b> and then click the command that you want to issue against the selected task instance.

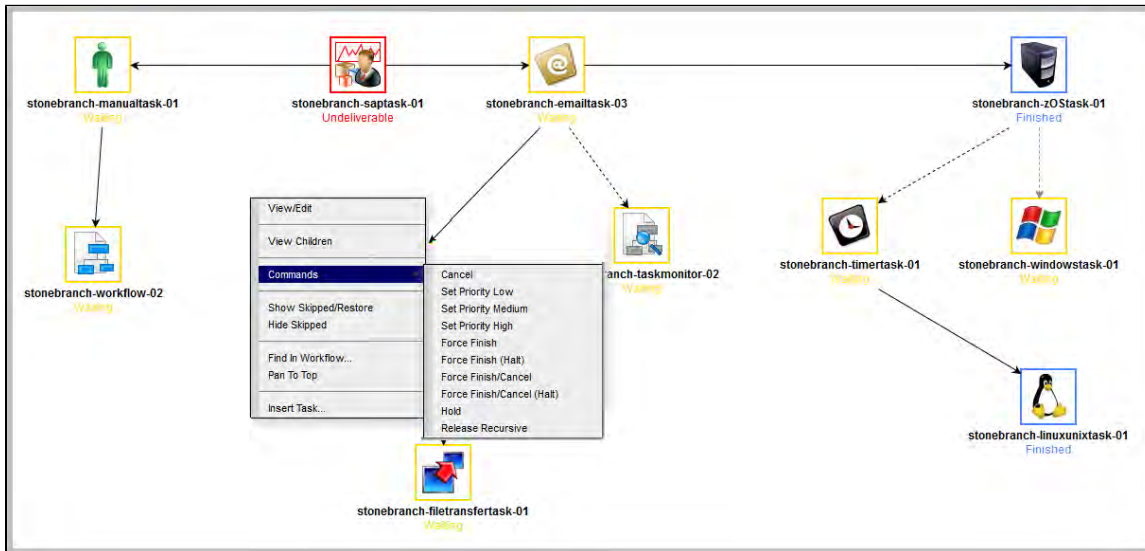
For example:



## Issue a Command Against the Workflow Task Instance

- |               |  |
|---------------|--|
| <b>Step 1</b> | Right-click the Workflow Monitor canvas to display a pop-up menu of commands appropriate for the workflow task instance. |
| <b>Step 2</b> | Click <b>Commands</b> and then click the command that you want to issue against the workflow task instance.              |

For example:



## 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	<ul style="list-style-type: none"> <li>• Cancel</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Force Finish/Cancel</li> <li>• Force Finish/Cancel (Halt)</li> <li>• Set Started</li> <li>• Set Completed</li> </ul>
Cancel Pending (99)	Agent-based	<ul style="list-style-type: none"> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Retrieve Output</li> </ul>
Cancelled (130)	All	<ul style="list-style-type: none"> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Re-run - Not applicable for Workflow tasks.</li> <li>• Retrieve Output</li> </ul>
Confirmation Required (125)	z/OS	<ul style="list-style-type: none"> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Re-run - Not applicable for Workflow tasks.</li> <li>• Retrieve Output</li> </ul>
Defined (0)	All	<ul style="list-style-type: none"> <li>• Clear All Dependencies</li> <li>• Clear Predecessors</li> <li>• Clear Time Wait/Delay</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Hold</li> <li>• Skip</li> <li>• Skip Path</li> <li>• Release Recursive - Workflow tasks only.</li> </ul>

Exclusive Requested (22)	All	<ul style="list-style-type: none"> <li>• Clear All Dependencies</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Hold</li> <li>• Skip</li> <li>• Skip Path</li> </ul>
Exclusive Wait (23)	All	<ul style="list-style-type: none"> <li>• Clear All Dependencies</li> <li>• Clear Exclusive</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Hold</li> <li>• Skip</li> <li>• Skip Path</li> <li>• Release Recursive - Workflow tasks only.</li> </ul>
Execution Wait (33)	Agent-based	<ul style="list-style-type: none"> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Hold</li> <li>• Skip</li> <li>• Skip Path</li> </ul>
Failed (140)	All (except Workflows)	<ul style="list-style-type: none"> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Re-run - Not applicable for Workflow tasks.</li> <li>• Retrieve Output</li> </ul>
Finished (190)	All	<ul style="list-style-type: none"> <li>• Re-run - Not applicable for Workflow tasks.</li> <li>• Retrieve Output</li> </ul>
Held (20)	All	<ul style="list-style-type: none"> <li>• Clear All Dependencies</li> <li>• Clear Time Wait/Delay</li> <li>• Clear Predecessors</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Release</li> <li>• Release Recursive - Workflow tasks only.</li> <li>• Skip</li> <li>• Skip Path</li> </ul>

In Doubt (110)	Agent-based	<ul style="list-style-type: none"> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Re-run - Not applicable for Workflow tasks.</li> <li>• Retrieve Output</li> </ul>
Queued (40)	Agent-based	<ul style="list-style-type: none"> <li>• Cancel</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Hold</li> <li>• Set Priority</li> </ul>
Resource Requested (25)	All tasks using Virtual Resources	<ul style="list-style-type: none"> <li>• Clear All Dependencies</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Hold</li> <li>• Skip</li> <li>• Skip Path</li> </ul>
Resource Wait (30)	All tasks using Virtual Resources	<ul style="list-style-type: none"> <li>• Clear All Dependencies</li> <li>• Clear Resources</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Hold</li> <li>• Skip</li> <li>• Skip Path</li> <li>• Release Recursive - Workflow tasks only.</li> </ul>
Running (80)	All	<ul style="list-style-type: none"> <li>• Cancel</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Force Finish/Cancel</li> <li>• Force Finish/Cancel (Halt)</li> <li>• Release Recursive - Workflow tasks only.</li> <li>• Retrieve Output</li> <li>• Set Priority</li> </ul>
Running Problems (81)	Workflow	<ul style="list-style-type: none"> <li>• Cancel</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Force Finish/Cancel</li> <li>• Force Finish/Cancel (Halt)</li> <li>• Hold</li> <li>• Release Recursive - Workflow tasks only.</li> </ul>

Skipped (180)	All	<ul style="list-style-type: none"> <li>• Unskip</li> </ul>
Start Failure (120)	All	<ul style="list-style-type: none"> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Re-run - Not applicable for Workflow tasks.</li> <li>• Retrieve Output</li> </ul>
Started (70)	Agent-based and Manual	<ul style="list-style-type: none"> <li>• Cancel</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Force Finish/Cancel</li> <li>• Force Finish/Cancel (Halt)</li> <li>• Retrieve Output</li> <li>• Set Completed - Manual tasks only.</li> <li>• Set Priority</li> </ul>
Submitted (43)	z/OS	<ul style="list-style-type: none"> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> </ul>
Success (200)	All	<ul style="list-style-type: none"> <li>• Re-run - Not applicable for Workflow tasks.</li> <li>• Retrieve Output</li> </ul>
Time Wait (15)	All (except Timer)	<ul style="list-style-type: none"> <li>• Clear All Dependencies</li> <li>• Clear Time Wait/Delay</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Hold</li> <li>• Skip</li> <li>• Skip Path</li> <li>• Release Recursive - Workflow tasks only</li> </ul>
Undeliverable (35)	Agent-based	<ul style="list-style-type: none"> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Hold</li> <li>• Skip</li> <li>• Skip Path</li> </ul>



Waiting (10)	All	<ul style="list-style-type: none"> <li>• Clear All Dependencies</li> <li>• Clear Predecessors</li> <li>• Clear Time Wait/Delay</li> <li>• Force Finish</li> <li>• Force Finish (Halt)</li> <li>• Hold</li> <li>• Skip</li> <li>• Skip Path</li> <li>• Release Recursive - Workflow tasks only</li> </ul>
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## Agent-Based Task Types

The following task types are Agent-based task types:

- Linux/Unix
- Windows
- z/OS
- Universal Command
- SAP
- PeopleSoft
- File Transfer
- File Monitor
- FTP 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

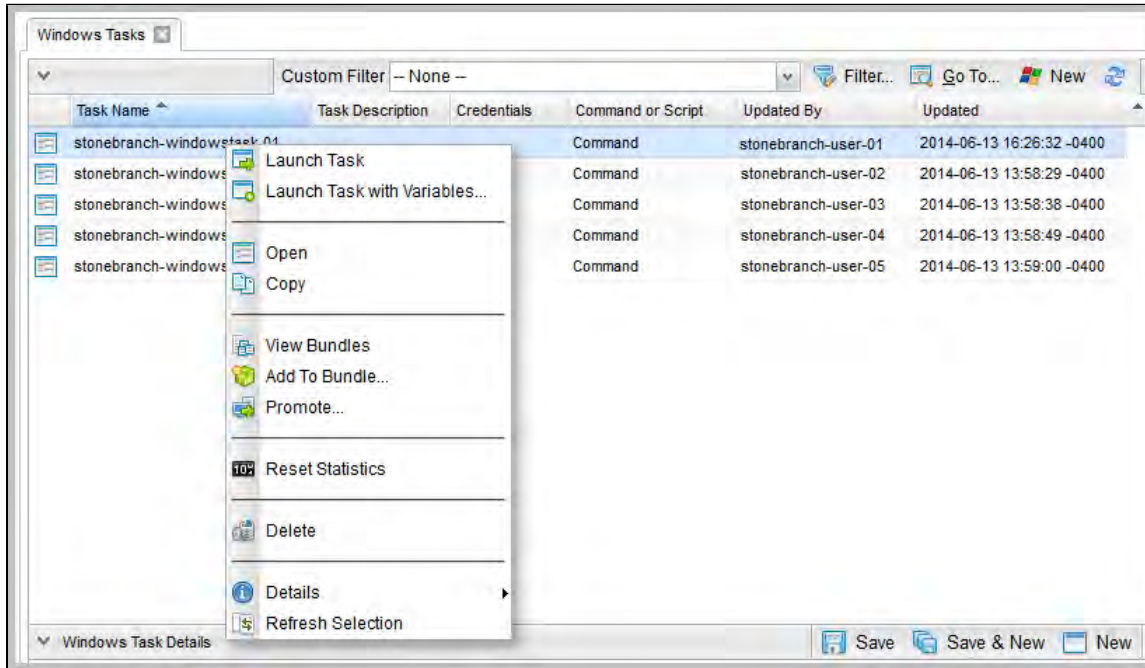
## Launch One or More Tasks from a Tasks List

**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.



**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.

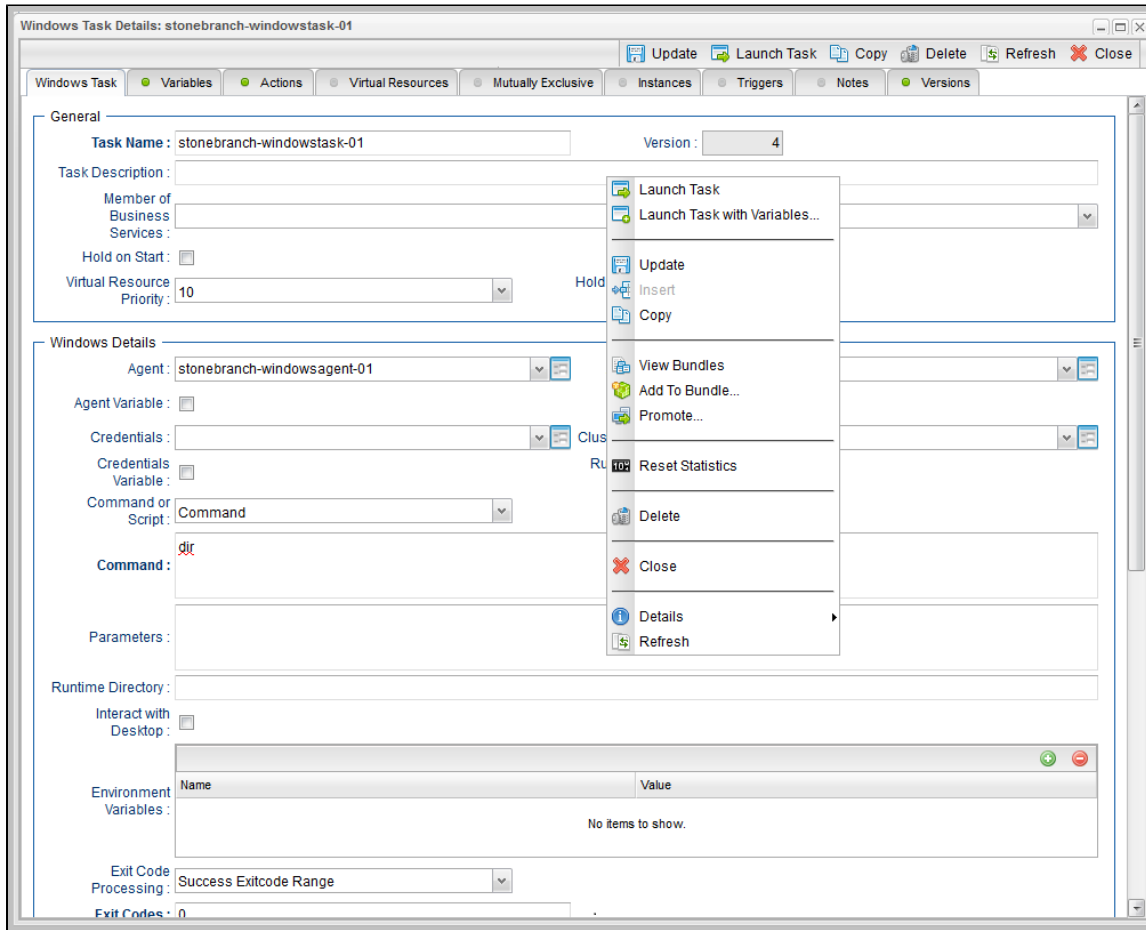
**Step 4** To view Details about running task instances, select **Task Instances > Activity** from the **Automation Center** navigation pane and click on the task instance.

## Launch a Task from Task Details

**Step 1** Select the task you want to launch.

**Step 2** 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**



## Launch a Task Manually with Temporary Variable Values

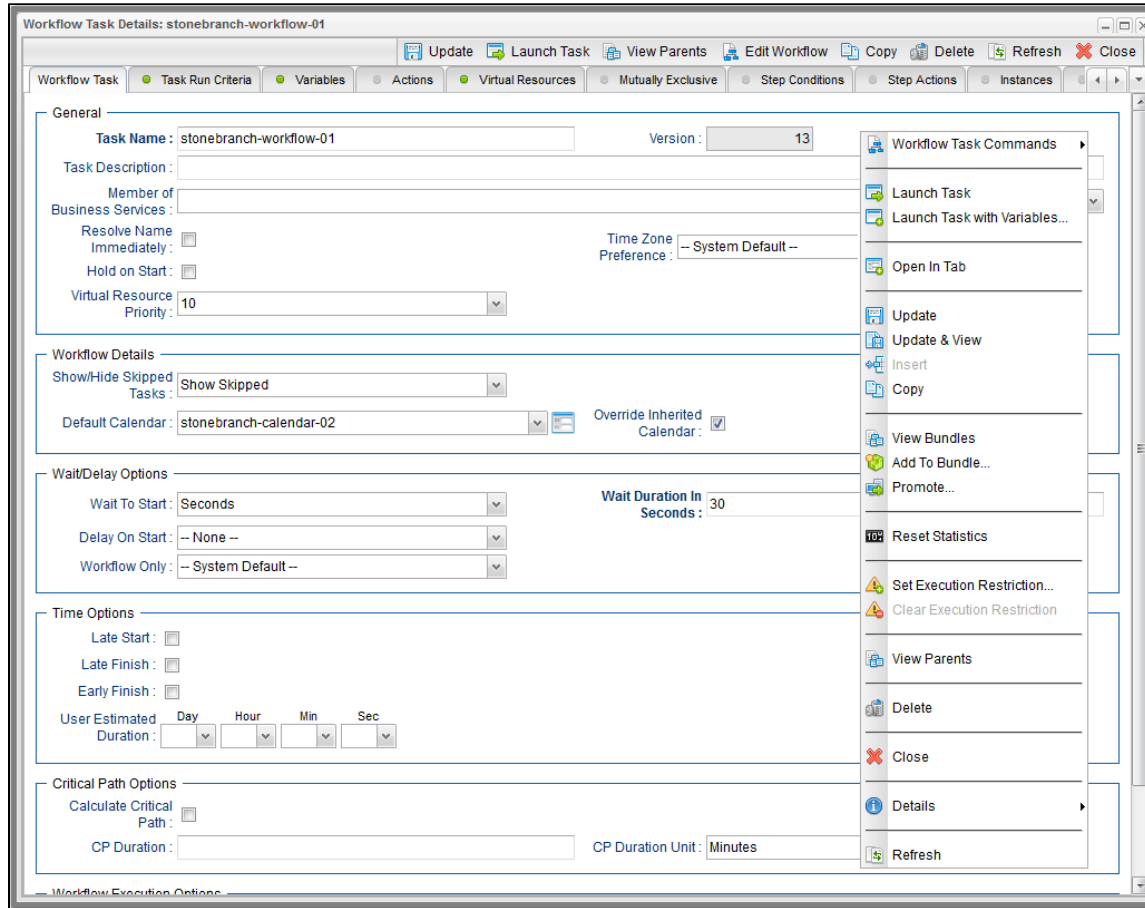
The Controller supports a Launch with Variables feature that allows you to quickly provide values for the variables specified in the task and launch it. All task types support the Launch with Variables feature.

(In the following procedure, the task is a Workflow already set up with variables where required.)

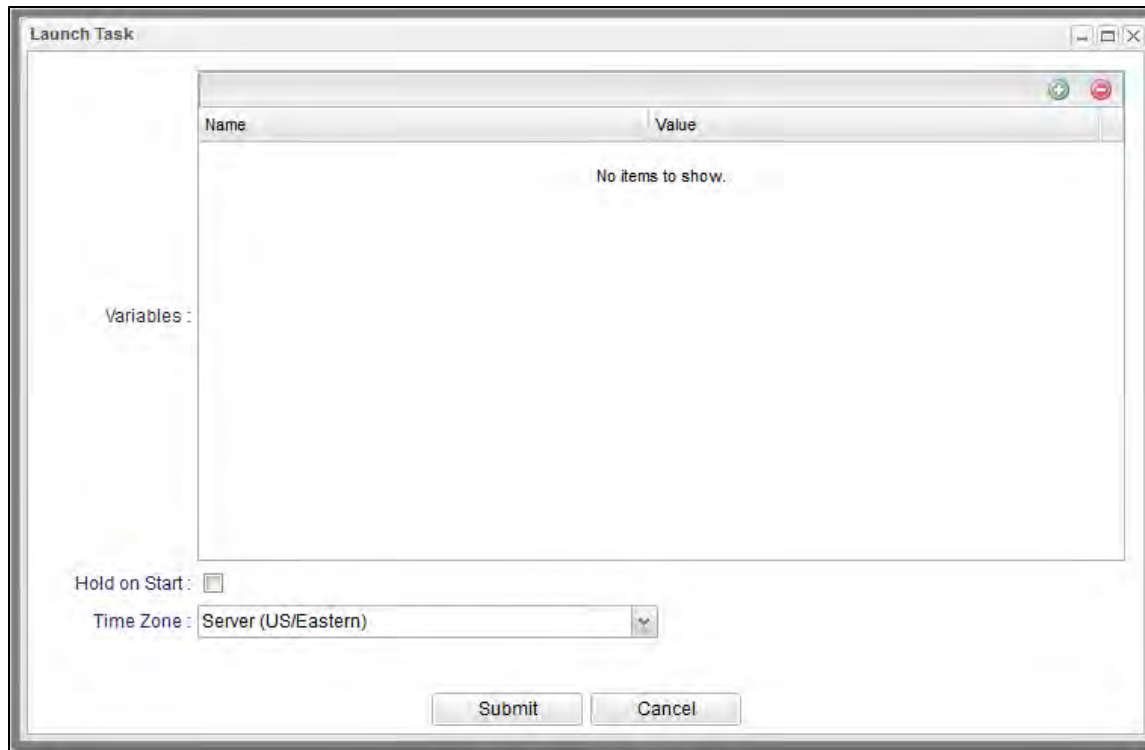
To launch a task using Launch with Variables:

**Step 1** Display the task you want to launch.

**Step 2** Access the Action menu.



**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).



**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**.

**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.

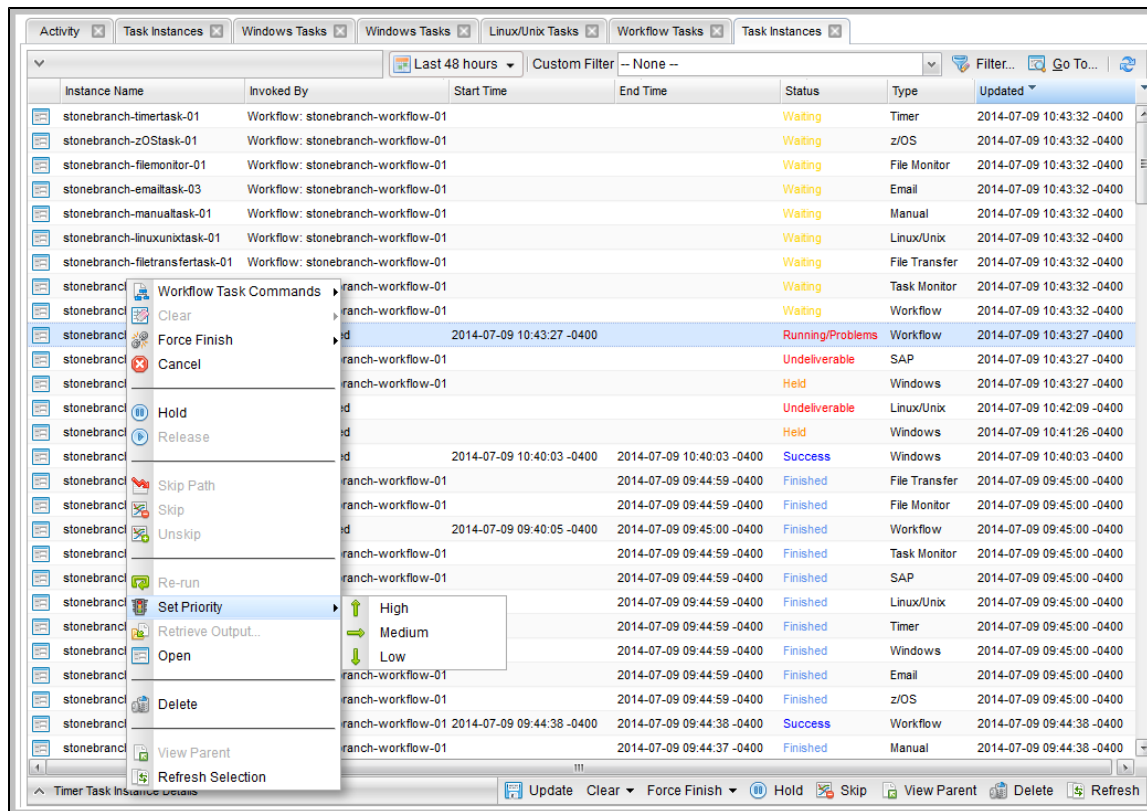
You can change the priority of a Linux/Unix, Universal, Windows, or z/OS task instance while it is in any of the following statuses: Started, Running, Queued.

Two methods are available for changing the priority of a task instance:

- From the Activity Monitor or Task Instances list
- From the Workflow Monitor

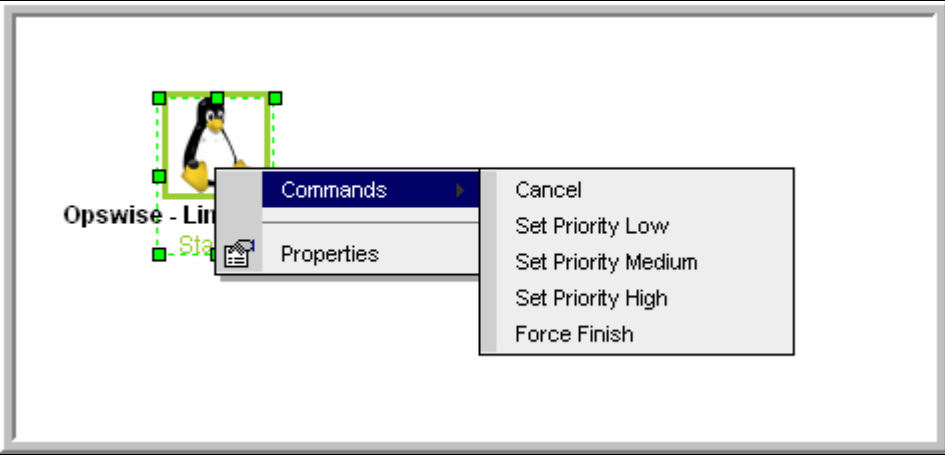
## Set Priority on a Task Instance from the Activity Monitor or Task Instances List

- 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.



<b>Step 3</b>	When the Set Priority command has been executed, the Controller displays the following message at the bottom of the list:  <code>Command Set Priority &lt;High/Medium/Low&gt; successfully against task instance &lt;name&gt;.</code>
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## Set Priority on a Task Instance from the Workflow Monitor

<b>Step 1</b>	View the Workflow that contains the task instance for which you want to set the priority.
<b>Step 2</b>	Select the task instance for which you want to set priority.
<b>Step 3</b>	Select <b>Commands</b> .  
<b>Step 4</b>	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 it as long as the Workflow has not completed.

If a task instance is not part of a Workflow, you can re-run it as long as it has not been manually purged from the Activity Monitor.

You can re-run a task instance while it is in any of the following statuses: Success, Start Failure, Failed, Cancelled, Finished.

(You also 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.)

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)

## Re-run a Task Instance from the Activity Monitor or Task Instances List

<b>Step 1</b>	Select the <a href="#">task instance</a> you want to re-run.
<b>Step 2</b>	Click <b>Re-run</b> . 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

<b>Step 1</b>	View the Workflow that contains the task instance you want to re-run.
<b>Step 2</b>	Select the <a href="#">task instance</a> you want to re-run.
<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Re-run</b> . 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.

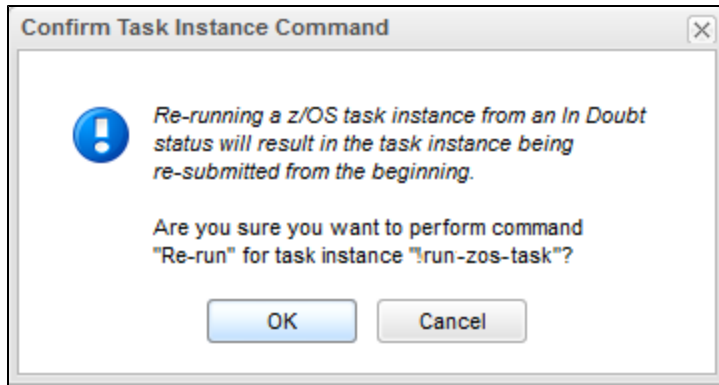


### Note

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.



**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.

For tasks that run on Agents, including Windows, Linux, Unix, z/OS, FTP, 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

<b>Step 1</b>	Select the <a href="#">task instance</a> you want to cancel.
<b>Step 2</b>	Click <b>Cancel</b> . The task status changes to Cancelled.

## Cancel a Task Instance from the Workflow Monitor

<b>Step 1</b>	Open the Workflow Monitor for the workflow that contains the task instance you want to cancel.
<b>Step 2</b>	Select the <a href="#">task instance</a> .
<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Cancel</b> . 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.

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 File Monitor and FTP 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

<b>Step 1</b>	Select the <a href="#">task instance</a> you want to Force Finish.
<b>Step 2</b>	Click <b>Force Finish</b> . The task status changes to Finished.

## Force Finish a Task Instance from the Workflow Monitor

<b>Step 1</b>	View the workflow that contains the task instance you want to Force Finish.
<b>Step 2</b>	Select the task instance.
<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Force Finish</b> . 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.

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).

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 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 File Monitor and FTP 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

<b>Step 1</b>	Select the task instance you want to Force Finish (Halt).
<b>Step 2</b>	Click <b>Force Finish (Halt)</b> . The task status changes to Finished.

## Force Finish (Halt) a Task Instance from the Workflow Monitor

<b>Step 1</b>	View the workflow that contains the task instance you want to Force Finish (Halt).
<b>Step 2</b>	Select the task instance.
<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Force Finish (Halt)</b> . 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.

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, 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

<b>Step 1</b>	Select the task instance you want to Force Finish/Cancel.
<b>Step 2</b>	Click <b>Force Finish/Cancel</b> . The task status changes to Finished.

## Force Finish/Cancel a Task Instance from the Workflow Monitor

<b>Step 1</b>	View the workflow that contains the task instance you want to Force Finish/Cancel.
<b>Step 2</b>	Select the task instance.
<b>Step 3</b>	Select <b>Commands</b> .

<b>Step 4</b>	Select <b>Force Finish/Cancel</b> . The task status changes to Finished and the Console opens to display information about the Force Finish/Cancel.
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## 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.

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, 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

<b>Step 1</b>	Select the <a href="#">task instance</a> you want to Force Finish/Cancel (Halt).
<b>Step 2</b>	Click <b>Force Finish/Cancel (Halt)</b> . The task status changes to Finished.

## Force Finish/Cancel (Halt) a Task Instance from the Workflow Monitor

<b>Step 1</b>	View the workflow that contains the task instance you want to Force Finish/Cancel (Halt).
<b>Step 2</b>	Select the task instance.
<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Force Finish/Cancel (Halt)</b> . 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

<b>Step 1</b>	Select the task instance you want to put on hold.
<b>Step 2</b>	Click <b>Hold</b> . The task status changes to Held.

## Hold a Task Instance from the Workflow Monitor

<b>Step 1</b>	View the workflow that contains the task instance you want to put on hold.
<b>Step 2</b>	Select the task instance.
<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Hold</b> . 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

<b>Step 1</b>	Select the <a href="#">task instance</a> you want to release from hold.
<b>Step 2</b>	Click <b>Release</b> or <b>Release Recursive</b> . 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

<b>Step 1</b>	View the Workflow that contains the task instance you want to release.
<b>Step 2</b>	Select the <a href="#">task instance</a> .
<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Release</b> . 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

<b>Step 1</b>	Select the <a href="#">task instance</a> you want to skip.
<b>Step 2</b>	Click <b>Skip</b> . The task status changes to Skipped.
<b>Step 3</b>	To skip the task instance and all of its dependent task instances, click <b>Skip Path</b> . 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

<b>Step 1</b>	View the Workflow that contains the task instance you want to skip.
<b>Step 2</b>	Select the <a href="#">task instance</a> .
<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Skip</b> . The task status changes to Skipped, and the Console opens to display information about the skip.
<b>Step 5</b>	To skip the task instance and all of its dependent task instances, click <b>Skip Path</b> . 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

<b>Step 1</b>	Display the Workflow Task Details for the Workflow that you want to show/hide Skipped task instances.
<b>Step 2</b>	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

<b>Step 1</b>	Display the Workflow Task Instance Details for the Workflow task instance that you want to show/hide Skipped task instances.
<b>Step 2</b>	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

<b>Step 1</b>	Select the task instance you want to unskip.
---------------	--

<b>Step 2</b>	Click <b>Unskip</b> . The task instance will run when all of its dependencies have been satisfied.
---------------	--

## Unskip a Task Instance from the Workflow Monitor

<b>Step 1</b>	View the Workflow that contains the task instance(s) you want to unskip.
<b>Step 2</b>	Select a <b>task instance</b> . (You can issue commands only against one task at a time within the Workflow Monitor.)
<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Unskip</b> . 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

<b>Step 1</b>	View the Workflow that contains the task instance whose dependencies you want to satisfy.
<b>Step 2</b>	Locate and right-click on the task dependency (the connector line between two tasks).
<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Mark as Satisfied</b> . 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

<b>Step 1</b>	View the Workflow that contains the task instance whose predecessor dependencies you want to satisfy.
<b>Step 2</b>	Select the <a href="#">task instance</a> for which you want to clear predecessor dependencies.
<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Clear Predecessors</b> . 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

<b>Step 1</b>	Select the <a href="#">task instance</a> whose resources you want to clear.
<b>Step 2</b>	Click <b>Clear Resources</b> . Resource dependencies are cleared from the task instance.

## Clear Resource Dependencies of a Task Instance from the Workflow Monitor

<b>Step 1</b>	View the Workflow that contains the task instance(s) you want to clear of resource dependencies.
<b>Step 2</b>	Select a <a href="#">task instance</a> . (You can issue commands only against one task at a time within the Workflow Monitor.)

<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Clear Resources</b> . 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

<b>Step 1</b>	Select the <a href="#">task instance</a> whose mutually exclusive dependencies you want to clear.
<b>Step 2</b>	Click <b>Clear Exclusive</b> . 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

<b>Step 1</b>	View the Workflow that contains the task instance you want to clear of mutually exclusive dependencies.
<b>Step 2</b>	Select a <a href="#">task instance</a> . (You can issue commands only against one task at a time within the Workflow Monitor.)
<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Clear Exclusive</b> . 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

<b>Step 1</b>	Select the <a href="#">task instance</a> whose dependencies you want to clear.
<b>Step 2</b>	Click <b>Clear All Dependencies</b> . 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

<b>Step 1</b>	View the Workflow that contains the task instance whose dependencies you want to clear.
<b>Step 2</b>	Select the <a href="#">task instance</a> for which you want to clear predecessor dependencies.
<b>Step 3</b>	Select <b>Commands &gt; Clear All Dependencies</b> . 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

<b>Step 1</b>	View the Workflow whose dependencies you want to clear.
<b>Step 2</b>	Right-click the Workflow Monitor canvas to display a menu of available actions.
<b>Step 3</b>	Select <b>Commands &gt; Clear All Dependencies</b> . 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

<b>Step 1</b>	Select the <a href="#">task instance</a> whose Time Wait/Delay specifications you want to clear.
<b>Step 2</b>	Click <b>Clear Time Wait/Delay</b> . The task instance is launched normally.

## Clear All Time Wait/Delay Specifications of a Task Instance from the Workflow Monitor

<b>Step 1</b>	View the Workflow that contains the task instance whose Time Wait/Delay specifications you want to clear.
<b>Step 2</b>	Select the <a href="#">task instance</a> for which you want to clear Time Wait/Delay specifications.
<b>Step 3</b>	Select <b>Commands</b> .
<b>Step 4</b>	Select <b>Clear Time Wait/Delay</b> . The task instance is launched normally.

## Clear All Time Wait/Delay Specifications of a Task Instance from the Task Instance Details

<b>Step 1</b>	Open the Task Instance Details for the task instance that you want to clear Time Wait/Delay specifications.
<b>Step 2</b>	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.

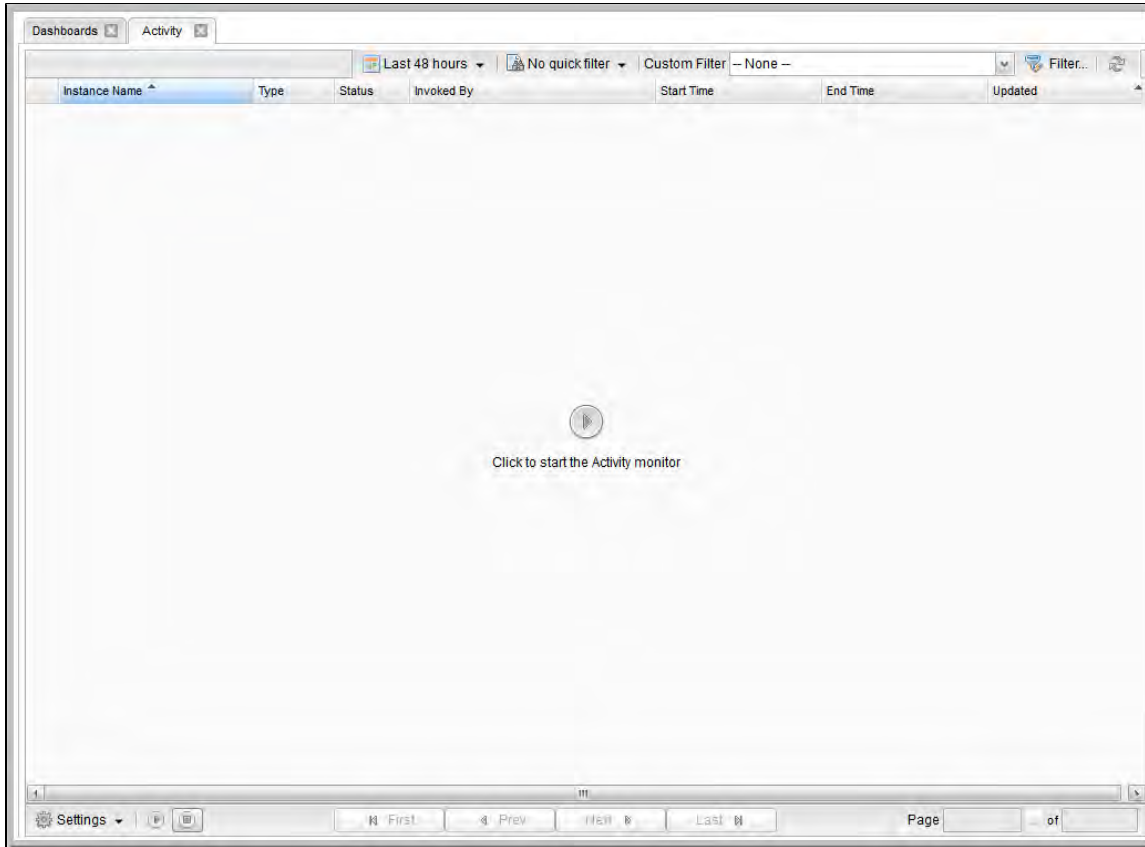
### Accessing the Activity Monitor

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.





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.

Dashboards x Activity x

646 Task Instances

Last 48 hours No quick filter Custom Filter -- None -- Filter...

Instance Name	Type	Status	Invoked By	Start Time	End Time	Updated
lecu-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: lecu-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: lecu-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: lecu-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: lecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 60	Timer	Skipped	Workflow: lecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 60	Timer	Skipped	Workflow: lecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 30	Timer	Skipped	Workflow: lecu-wkfl-sleep		2014-09-02 12:57:55 -0400	2014-09-02 12:57:55 -0400
Sleep 30	Timer	Skipped	Workflow: lecu-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

Settings First Prev Next Last Page 1 of 26



**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.

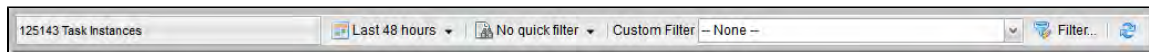
## Activity Monitor Column Descriptions

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 <a href="#">status</a> of this task instance.
Invoked By	How the task instance was launched. One of the following: <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) - The instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) - The instance was launched by the named workflow.</li> <li>• Manually Launched - The instance was launched by a user. To determine the name of the user: <ol style="list-style-type: none"> <li>1. From the Activity or Task Instances screen, click the task instance name to open the record.</li> <li>2. The Execution User field identifies the user who launched the task instance.</li> </ol> </li> </ul>
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

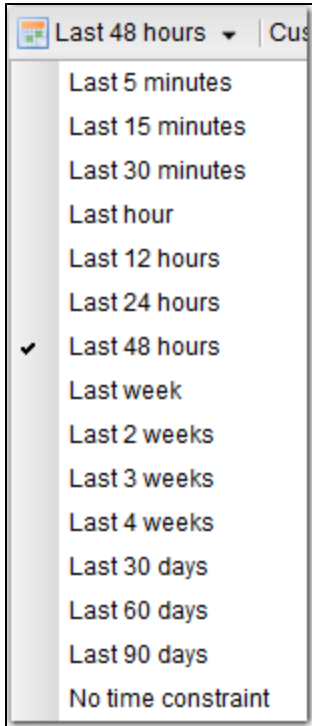
An Activity Monitor task bar displays across the top of the [Activity Monitor](#), which allows you to select which task instances display on the Activity Monitor.



## 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.

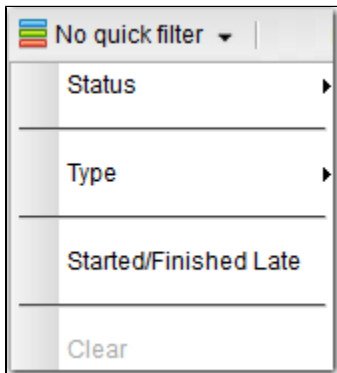
The default time constraint, as specified by the [Activity Time Constraint](#) user preference, is 48 hours.



## 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:

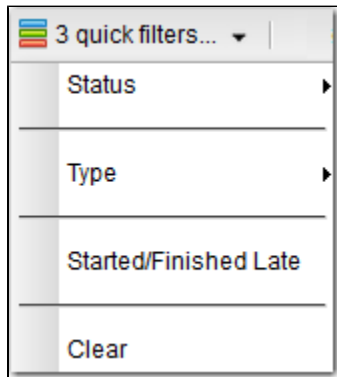
- Status: Individual [task instance status](#) and the following composite statuses:
  - Active = All task instance statuses except Skipped (180), Finished (190), Success (200).
  - Blocked = Waiting (10), Held (20), Exclusive Wait (23), Resource Wait (30), Execution Wait (33), and Action Required (60) 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**

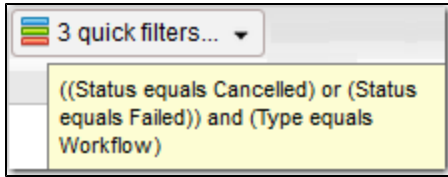
You can change the names of the composite statuses Quick Filters (Active, Blocked, Completed, and Problem), and the task instance statuses included in each one, by editing the [System Default Activity Quick Filters](#) Universal Controller system property.

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.



## 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.



See [Filters](#) for detailed information on applying and saving filters.

## Refresh

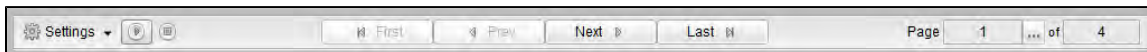
The **Refresh** button enables you to perform a manual [refresh](#) of the information displayed on the Activity Monitor.



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

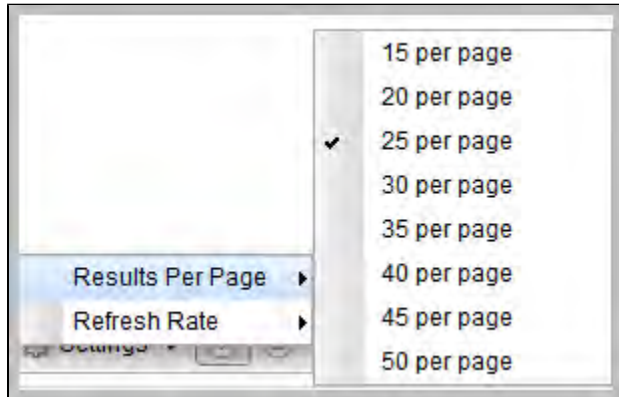
The Settings drop-down list provides the following selections:

- Results Per Page

- Refresh Rate

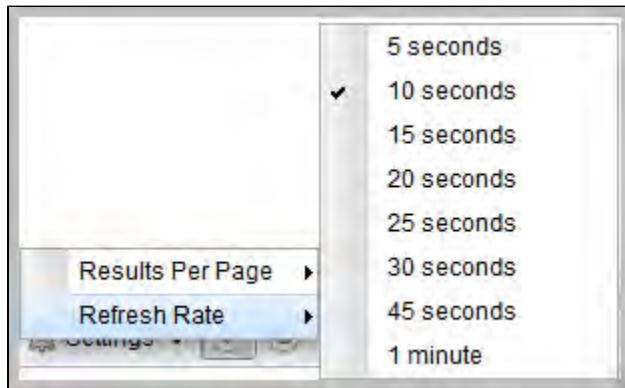
## Results Per Page

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).



## Refresh Rate

Hover your 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.

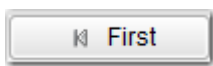
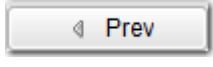
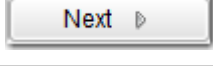
The **Activity Monitor Automatically** value specifies whether or not the Activity Monitor automatically is monitoring Controller activity.

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 <a href="#">Time Constraint</a> setting and any applied <a href="#">Filters</a> .
	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.

	Displays the first page of the list.
	Displays the previous page of the list.
	Displays the next page of the list.
	Displays the last page of the list.



**Note**

You also can specify a specific page number to go to (see [Page Numbering](#), below).

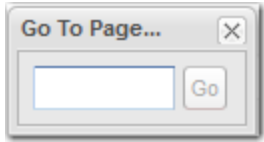
## Page Numbers

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:

<a href="#">Show Metadata</a>	Displays Metadata for the task instance, including a status history.
<a href="#">Show Details</a>	Displays complete database details for the task instance.
<a href="#">Show Variables</a>	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

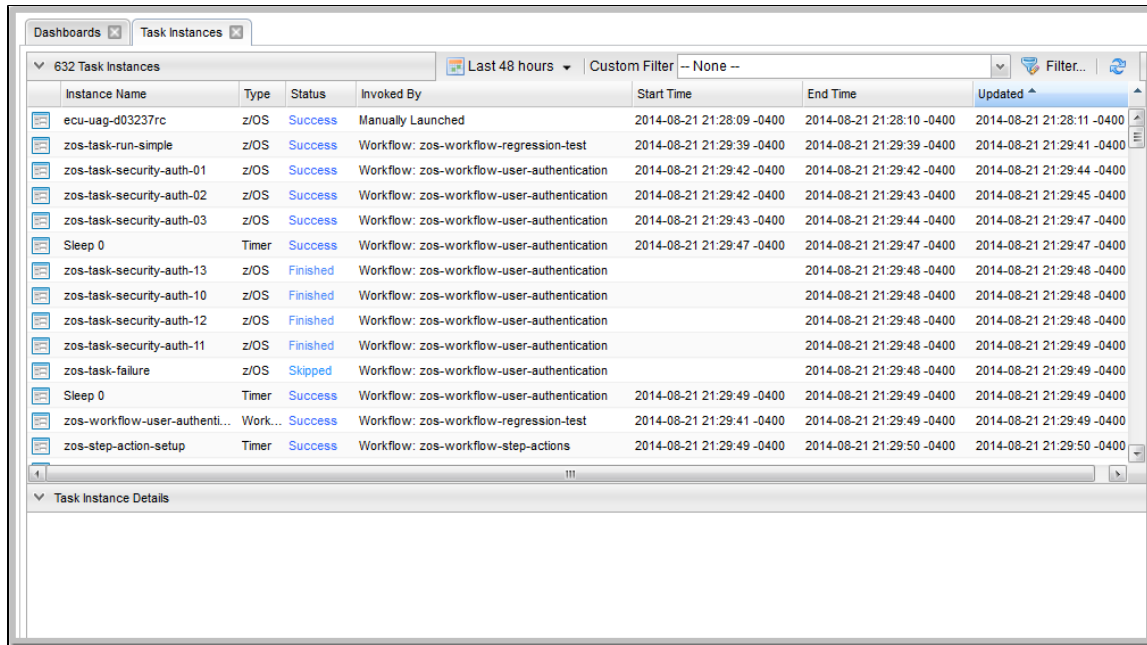
The Task Instances list displays the same task instance information as the [Activity Monitor](#), but only for task instances for which there has been a status change or a modification to the task instance record.

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.



## Task Instances List Column Descriptions

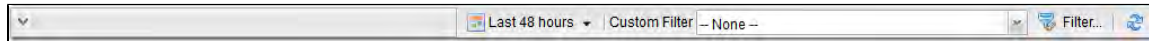
The following table describes the default columns of information displayed on the Task Instances list.

Column	Description
Instance Name	Name of this task instance.
Invoked By	System-supplied; how the task instance was launched. One of the following: <ul style="list-style-type: none"> <li>• Trigger: (Trigger Name) - The instance was launched by the named trigger.</li> <li>• Workflow: (Workflow Name) - The instance was launched by the named workflow.</li> <li>• Manually Launched - The instance was launched by a user. To determine the name of the user:                             <ol style="list-style-type: none"> <li>1. From the Activity or Task Instances screen, click the task instance name to open the record.</li> <li>2. The Execution User field identifies the user who launched the task instance.</li> </ol> </li> </ul>
Start Time	Date and time the task instance started.
End Time	Date and time the task instance ended.
Status	Current <a href="#">status</a> 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

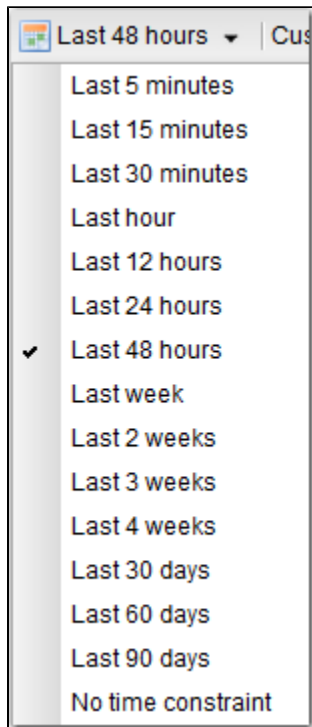
A Task Instances List task bar displays across the top of the [Task Instances list](#), which allows you to select which task instances display on the list.



## 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.



## 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.



See [Filters](#) for detailed information on 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:

<a href="#">Show Metadata</a>	Displays Metadata for the task instance, including a status history.
<a href="#">Show Details</a>	Displays complete database details for the task instance.
<a href="#">Show Variables</a>	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

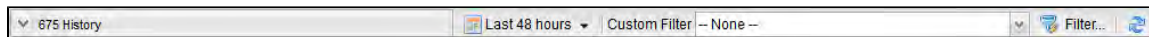
**Step 1** From the Automation Center navigation pane, select **Task Instances > History**. The History list displays.

Instance Name	Instance Id	Type	Status	Start Time	End Time	Duration	Waited for Resources	Waited for Exclusive	Updated By	Updated
zos-task-load-simple-02	93	z/OS	Success	2014-08-21 21:35:04 -0400	2014-08-21 21:35:04 -0400	0 Seconds	No	No	ops.system	2014-08-21 21:35:08 -0400
zos-task-load-simple-05	31	z/OS	Success	2014-08-21 21:42:50 -0400	2014-08-21 21:42:51 -0400	0 Seconds	No	No	ops.system	2014-08-21 21:42:54 -0400
zos-task-load-simple-04	25	z/OS	Success	2014-08-21 21:37:06 -0400	2014-08-21 21:37:07 -0400	0 Seconds	No	No	ops.system	2014-08-21 21:37:10 -0400
zos-task-security-auth-11	1	z/OS	Start Failure				No	No	ops.system	2014-08-21 21:29:48 -0400
zos-task-load-simple-01	66	z/OS	Success	2014-08-21 21:35:42 -0400	2014-08-21 21:35:42 -0400	0 Seconds	No	No	ops.system	2014-08-21 21:35:45 -0400
zos-task-load-simple-04	14	z/OS	Success	2014-08-21 21:45:20 -0400	2014-08-21 21:45:20 -0400	0 Seconds	No	No	ops.system	2014-08-21 21:45:23 -0400
zos-task-rerun-auto-02	1	z/OS	Step Restarted				No	No	ops.system	2014-08-21 21:30:24 -0400
zos-task-load-simple-02	33	z/OS	Success	2014-08-21 21:34:43 -0400	2014-08-21 21:34:45 -0400	1 Seconds	No	No	ops.system	2014-08-21 21:34:48 -0400
zos-task-load-simple-03	19	z/OS	Success	2014-08-21 21:34:47 -0400	2014-08-21 21:34:48 -0400	0 Seconds	No	No	ops.system	2014-08-21 21:34:50 -0400
zos-task-load-simple-04	69	z/OS	Success	2014-08-21 21:40:19 -0400	2014-08-21 21:40:20 -0400	0 Seconds	No	No	ops.system	2014-08-21 21:40:23 -0400
zos-task-load-simple-05	95	z/OS	Success	2014-08-21 21:41:15 -0400	2014-08-21 21:41:16 -0400	0 Seconds	No	No	ops.system	2014-08-21 21:41:19 -0400
zos-task-load-simple-02	10	z/OS	Success	2014-08-21 21:35:43 -0400	2014-08-21 21:35:44 -0400	0 Seconds	No	No	ops.system	2014-08-21 21:35:47 -0400
zos-task-stepcond-abend-...	1	z/OS	Failed	2014-08-21 21:30:30 -0400	2014-08-21 21:30:43 -0400		No	No	ops.system	2014-08-21 21:30:43 -0400
zos-task-load-simple-01	82	z/OS	Success	2014-08-21 21:34:13 -0400	2014-08-21 21:34:13 -0400	0 Seconds	No	No	ops.system	2014-08-21 21:34:17 -0400
zos-task-load-simple-05	2	z/OS	Success	2014-08-21 21:36:09 -0400	2014-08-21 21:36:09 -0400	0 Seconds	No	No	ops.system	2014-08-21 21:36:13 -0400
zos-task-load-simple-02	54	z/OS	Success	2014-08-21 21:42:29 -0400	2014-08-21 21:42:34 -0400	5 Seconds	No	No	ops.system	2014-08-21 21:42:37 -0400
zos-task-stepcond-abend-...	1	z/OS	Finished	2014-08-21 21:31:26 -0400	2014-08-21 21:31:36 -0400	9 Seconds	No	No	ops.system	2014-08-21 21:31:36 -0400
zos-task-load-simple-02	28	z/OS	Success	2014-08-21 21:36:23 -0400	2014-08-21 21:36:24 -0400	1 Seconds	No	No	ops.system	2014-08-21 21:36:28 -0400
zos-task-load-simple-03	51	z/OS	Success	2014-08-21 21:47:02 -0400	2014-08-21 21:47:03 -0400	0 Seconds	No	No	ops.system	2014-08-21 21:47:06 -0400
zos-task-rerun-auto-02	1	z/OS	Step Restarted				No	No	ops.system	2014-08-21 21:30:47 -0400
zos-task-load-simple-02	46	z/OS	Success	2014-08-21 21:41:35 -0400	2014-08-21 21:41:35 -0400	0 Seconds	No	No	ops.system	2014-08-21 21:41:38 -0400
zos-task-load-simple-04	17	z/OS	Success	2014-08-21 21:41:38 -0400	2014-08-21 21:41:45 -0400	5 Seconds	No	No	ops.system	2014-08-21 21:41:47 -0400

**Step 2** You can modify the display by filtering, sorting, adding, and removing columns (see [Record Lists](#)).

## History List Task Bar

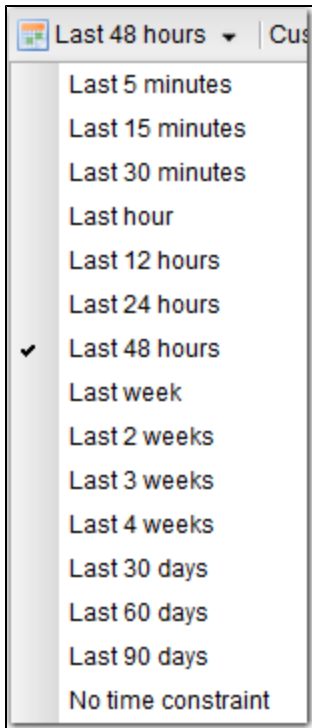
A History List task bar displays across the top of the [History list](#), which allows you to select which task instances display on the list.



## 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.



## 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.



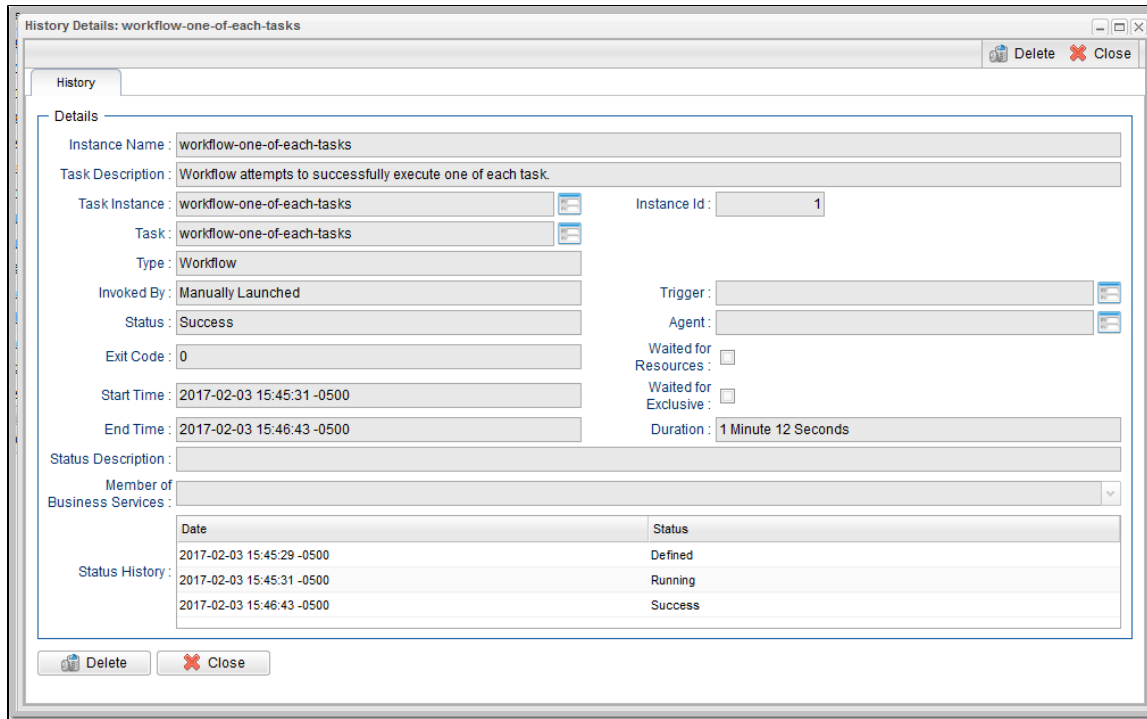
See [Filters](#) for detailed information on applying and saving filters.

## 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 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 Id	Controller-incremented number each time the task is run.
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 <b>Type</b> = Universal; Name of the Universal Template on which the Universal Task Type is based.

Invoked by	<p>System-supplied; how the task instance was launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Trigger: (Trigger Name)</b> Instance was launched by the named trigger.</li> <li>• <b>Workflow: (Workflow Name)</b> Instance was launched by the named workflow.</li> <li>• <b>Manually Launched</b> Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the <a href="#">Task Instances</a> screen or, on most task instance screens, the <a href="#">Execution User</a> field.</li> </ul>
Trigger	Name of the trigger that launched this task.
Status	System-supplied; see <a href="#">Task Instance Statuses</a> .
Agent	Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an <a href="#">Agent Cluster</a> .
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.
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 <a href="#">Business Services</a> that this record belongs to.
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:

Linux/Unix Task Details: stonebranch-linuxunixtask-01
Update Launch Task View Parents Copy Delete Refresh Close

Linux/Unix Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions

**General**

Task Name:  Version:

Task Description:

Member of Business Services:

Resolve Name Immediately:

Hold on Start:

Virtual Resource Priority:  Hold Resources on Failure:

**Linux/Unix Details**

Agent:  Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials:  Cluster Broadcast:

Credentials Variable:  Run as sudo:

Command or Script:

Command:

Parameters:

Runtime Directory:

Environment Variables:

Name	Value
No items to show.	

Exit Code Processing:

Exit Codes:

Automatic Output Retrieval:

**Retry Options**

Retry Exit Codes:

Maximum Retries:  Retry Indefinitely:

Retry Interval (Seconds):  Suppress Intermediate Failures:

**Wait/Delay Options**

Wait To Start:

Delay On Start:

Workflow Only:

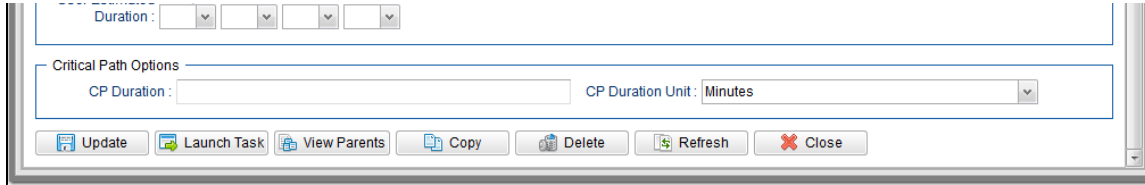
**Time Options**

Late Start:

Late Finish:

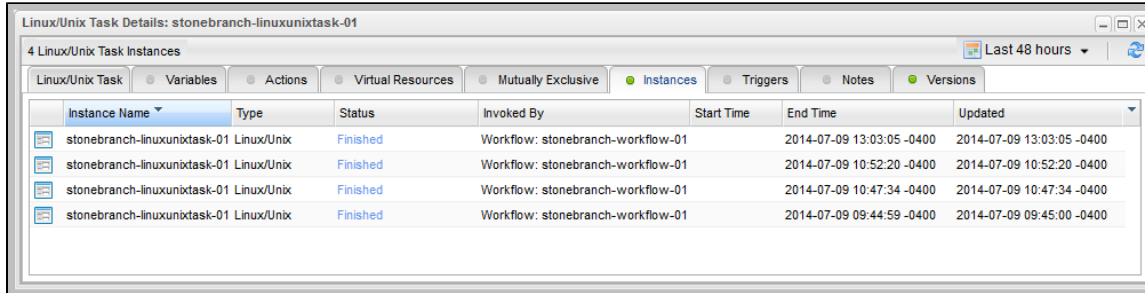
Early Finish:

User Estimated Day Hour Min Sec



**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.



**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

**General**

Instance Name:  Reference Id:

Task:  Invoked By:

Task Description:

Member of Business Services:  Execution User:

Resolve Name Immediately:

Virtual Resource Priority:  Hold Resources on Failure:

**Status**

Status:  Exit Code:

Status Description:

Operational Memo:

Trigger Time:  Launch Time:

Queued Time:

Start Time:  End Time:

Duration:  CPU Time:

Process ID:

**Linux/Unix Details**

Agent:  Agent Cluster:

Agent Variable:  Agent Cluster Variable:

Credentials:  Credentials Variable:

Run as sudo:

Command or Script:

Command:

Parameters:

Runtime Directory:

Environment Variables:

Name	Value
No items to show.	

Exit Code Processing:

Exit Codes:

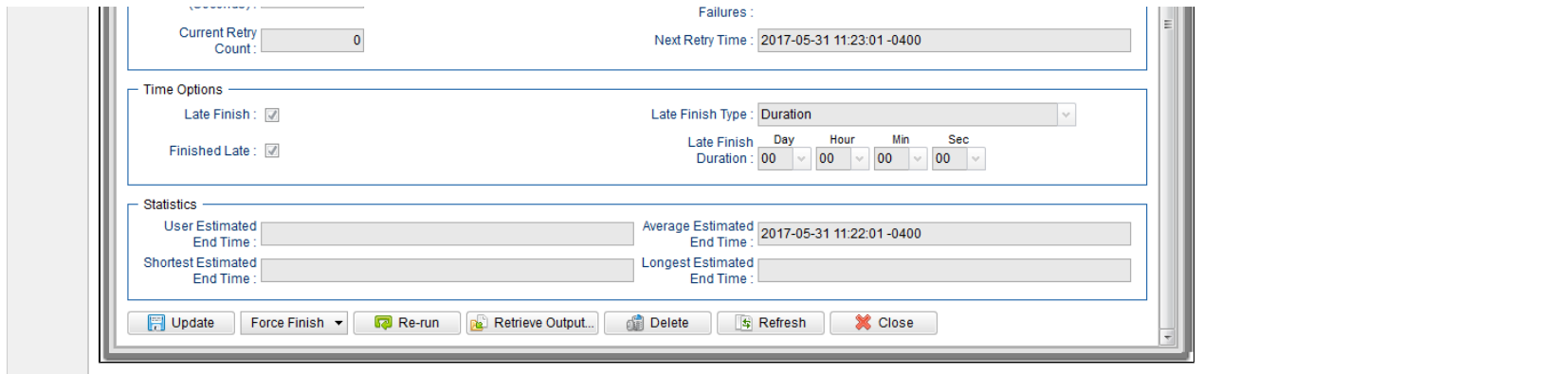
Automatic Output Retrieval:

**Retry Options**

Retry Exit Codes:

Maximum Retries:  Retry Indefinitely:

Retry Interval (Seconds):  Suppress Intermediate:



## 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:

<a href="#">Show Metadata</a>	Displays Metadata for the task instance, including a status history.
<a href="#">Show Details</a>	Displays complete database details for the task instance.
<a href="#">Show Variables</a>	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.



Dashboards x Activity x Show Variables: stonebranch-task-variables-01 x

Instance Name:	stonebranch-task-variables-01		
Status:	Running		
Status Description:			
Invoked By:	Workflow: stonebranch-workflow-variables-02		
Execution User:	variable_user_a		
UUID:	15011667358096523778SEIVG8EX3J9		

Name	Value	Resolved Value	Inherited
stonebranch-task-variables-01			
DEFAULT_INIT_TOKEN	c82799be297c4eeb86a8ffff5b9db9b8a		
INIT_TIME	2017-07-27 11:43:16 -0400		
ops_attempt	1		
ops_cluster_hostname	qa-cntrf-mysql.stone.branch		
ops_cluster_id	qa-cntrf-mysql.stone.branch:8080-qa-cntrf-mysql		
ops_cluster_ipaddr	192.168.31.42		
ops_cluster_mode	Active		
ops_cluster_name	qa-cntrf-mysql.stone.branch:8080-qa-cntrf-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-cntrf-mysql		
ops_task_id	15011667358096523778SEIVG8EX3J9		
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	1501166735809648377XH54VKQXNY3W		
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	<p>Value of the variable.</p> <p>If the variable was defined by using the Variables tab on a trigger, task, or workflow (that is, a <a href="#">Local Variable</a>), and it is a composite of other variables and/or <a href="#">functions</a>, 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.</p> <p>For example: <code>unique_id=\${ops_task_name}-\${ops_task_id}-\${ops_task_ref_count}-\${_date()}}</code></p> <p>If the variable was defined by using a <a href="#">Set Variable action</a> for a task or workflow, and it is a composite of other variables, the value would be fully resolved.</p>
Resolved Value	<p>If the variable is a composite of other variables and/or functions; value that the variable would resolve to now.</p> <p>For example, using unique_id from the Value field, above: <code>unique_id=stonebranch-task-variables-01-15011667358096523778SIEIVG8EX3J9-10-2017-07-27 16:03:38-0400</code></p>
Inherited	<p>Indication (Yes or No) for whether a variable defined in the workflow hierarchy, or globally, would be inherited by the task instance.</p> <p>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.</p> <p>(This field is not applicable for variables defined within the task instances own scope.)</p>
<b>Buttons</b>	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).

<b>Activity Monitor</b>	<p>To display the status of one or more task instances on the Activity Monitor:</p> <ol style="list-style-type: none"> <li>1. From the <a href="#">Automation Center</a> navigation pane, select <b>Task Instances &gt; Activity</b>. The Activity Monitor contains a <b>Status</b> column that identifies the current status of every task instance on the list.</li> </ol>
<b>Task Instances list</b>	<p>To display the status of one or more task instances on the Task Instances list:</p> <ul style="list-style-type: none"> <li>• From the <a href="#">Automation Center</a> navigation pane, select <b>Task Instances &gt; All Task Instances</b>. The Task Instances list contains a <b>Status</b> column that identifies the current status of every task instance on the list.</li> </ul>
<b>History list</b>	<p>To display the status of one or more task instances on the History list:</p> <ul style="list-style-type: none"> <li>• From the <a href="#">Automation Center</a> navigation pane, select <b>Task Instances &gt; History</b>. The History list contains a <b>Status</b> column that identifies the current status of every task instance on the list.</li> </ul>
<b>Command Line Interface (CLI)</b>	<p>To display the status of one or more task instances from the Command Line Interface:</p> <ul style="list-style-type: none"> <li>• Use the <a href="#">ops-task-status</a> function.</li> </ul>

## 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 <a href="#">mutually exclusive task</a> 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 <a href="#">mutually exclusive</a> 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 <a href="#">virtual resource</a> 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 <a href="#">virtual resource</a> 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	<a href="#">Agent-based</a>	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 <a href="#">suspended</a> .
35	Undeliverable	<a href="#">Agent-based</a>	The Agent is unavailable.
40	Queued	<a href="#">Agent-based</a>	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 <a href="#">z/OS jobstep</a> .
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 <a href="#">Manual task</a> .
70	Started	<a href="#">Agent-based</a> , <a href="#">Manual</a>	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	<p>One or more task instances within the workflow has one of the following statuses:</p> <ul style="list-style-type: none"> <li>• Cancelled</li> <li>• Confirmation Required</li> <li>• Failure</li> <li>• In Doubt</li> <li>• Running/Problems (for sub-workflows)</li> <li>• Start Failure</li> <li>• Undeliverable</li> </ul>
99	Cancel Pending	Agent-based	<p>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.</p>
110	In Doubt	Agent-based, SQL, Stored Procedure, Web Service	<p>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."</p> <p>When the Controller restarts, any <a href="#">SQL</a>, <a href="#">Stored Procedure</a>, and <a href="#">Web Service</a> 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.</p>
120	Start Failure	All	<p>The task instance was unable to start.</p>
125	Confirmation Required	z/OS	<p>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 <a href="#">Rerunning a z/OS Task</a>.</p>
130	Cancelled	All	<p>The task instance was cancelled by a user.</p>
140	Failed	All (except Workflow)	<p>The task instance ran to a failure status.</p>
180	Skipped	All	<p>The task instance was skipped by Run/Skip criteria, an Execution Restriction, or the Skip command.</p>
190	Finished	All	<p>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 <a href="#">Force Finishing a Task</a>.</p>
200	Success	All	<p>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.</p>

## Agent-Based Task Types

The following task types are Agent-based task types:

- Linux/Unix
- Windows
- z/OS
- Universal Command
- SAP
- PeopleSoft
- File Transfer
- File Monitor

- FTP 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			
FTP 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.

<b>Step 1</b>	Specify Automatic Output Retrieval for a task (in its <a href="#">Automatic Output Retrieval</a> field).
<b>Step 2</b>	Run the task; the Controller automatically retrieves that type of output for the task instance.
<b>Step 3</b>	From the <a href="#">Automation Center</a> navigation pane, select <b>Task Instances &gt; Activity</b> or <b>Task Instances &gt; Task Instances</b> to display the <a href="#">Activity Monitor</a> or <a href="#">Task Instances list</a> .

**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-cntrl.stone.branch - qa-cntrl Agent Cluster: MikeD

Agent Variable: Agent Cluster Variable:

Credentials: Credentials Variable:

Command or Script: Command Run as sudo:

Command: ls -la

**Step 5** Click the Output tab to view the output that you specified to be automatically retrieved.

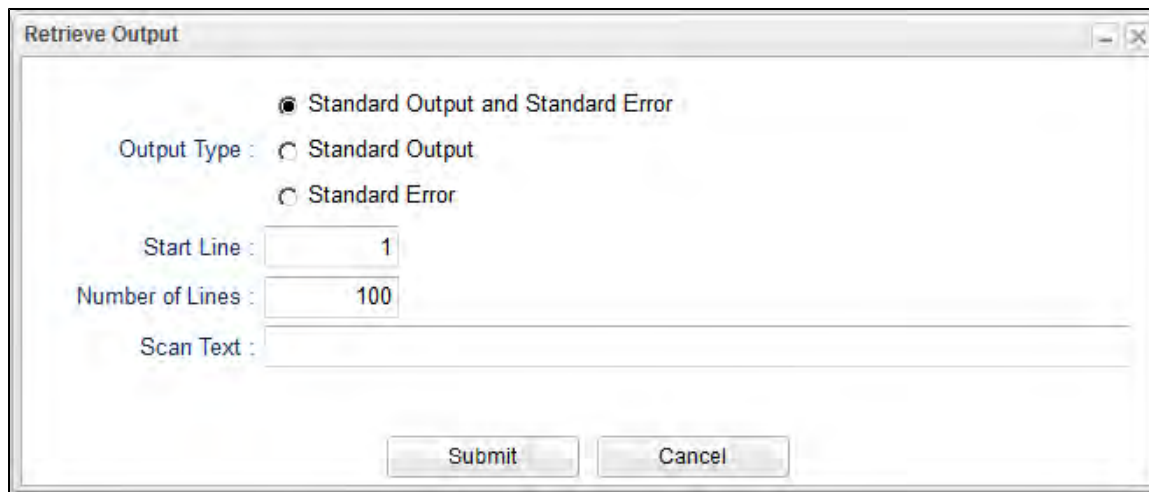
Linux/Unix Task Instance Details: Test\_LS

Linux/Unix Task Instance | Virtual Resources | Exclusive Requests | **Output** | Notes

2 Output Retrieve Output...

Type	Attempt	Output	Updated By	Updated
		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_efc.trc		
		-rw-r--r--. 1 root root 60 Aug 1 09:22 .exr		
		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		
STDOUT	1	drwxr-xr-x. 2 root root 6 Jun 9 2014 media	ops.system	2018-08-07 10:05:46 -0400
		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		
STDERR	1	[empty]	ops.system	2018-08-07 10:05:46 -0400

**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.



The screenshot shows a dialog box titled "Retrieve Output". It contains the following elements:

- A radio button labeled "Standard Output and Standard Error" which is selected.
- An "Output Type" section with two radio buttons: "Standard Output" and "Standard Error", both of which are unselected.
- A "Start Line" text box containing the number "1".
- A "Number of Lines" text box containing the number "100".
- A "Scan Text" text box which is currently empty.
- At the bottom, there are two buttons: "Submit" and "Cancel".

If the selected task is a z/OS task, the Retrieve Output dialog contains a single **Output Type** selection:



The screenshot shows a dialog box titled "Retrieve Output" for a z/OS task. It contains the following elements:

- An "Output Type" section with a single radio button labeled "z/OS Job Log" which is selected.
- A "Start Line" text box containing the number "1".
- A "Number of Lines" text box containing the number "100".
- A "Scan Text" text box which is currently empty.
- At the bottom, there are two buttons: "Submit" and "Cancel".

**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**

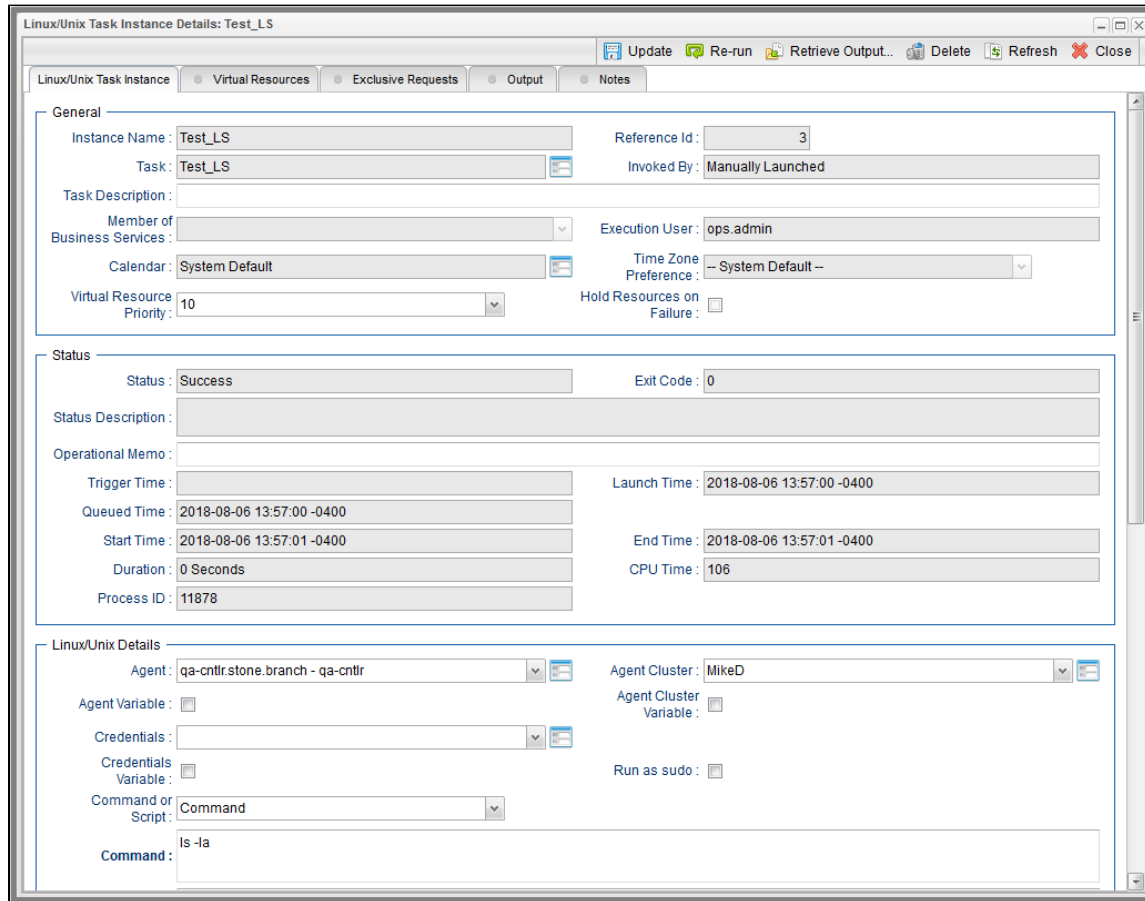
If you want to retrieve data starting at the end of a file, enter -1 in the **Start Line** field and the number of lines to retrieve in the **Number of Lines** field.

## 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.



**Step 3** Click the Retrieve Output button to display the Retrieve Output dialog.

If the selected task is a z/OS task, the Retrieve Output dialog contains a single **Output Type** selection:

**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**

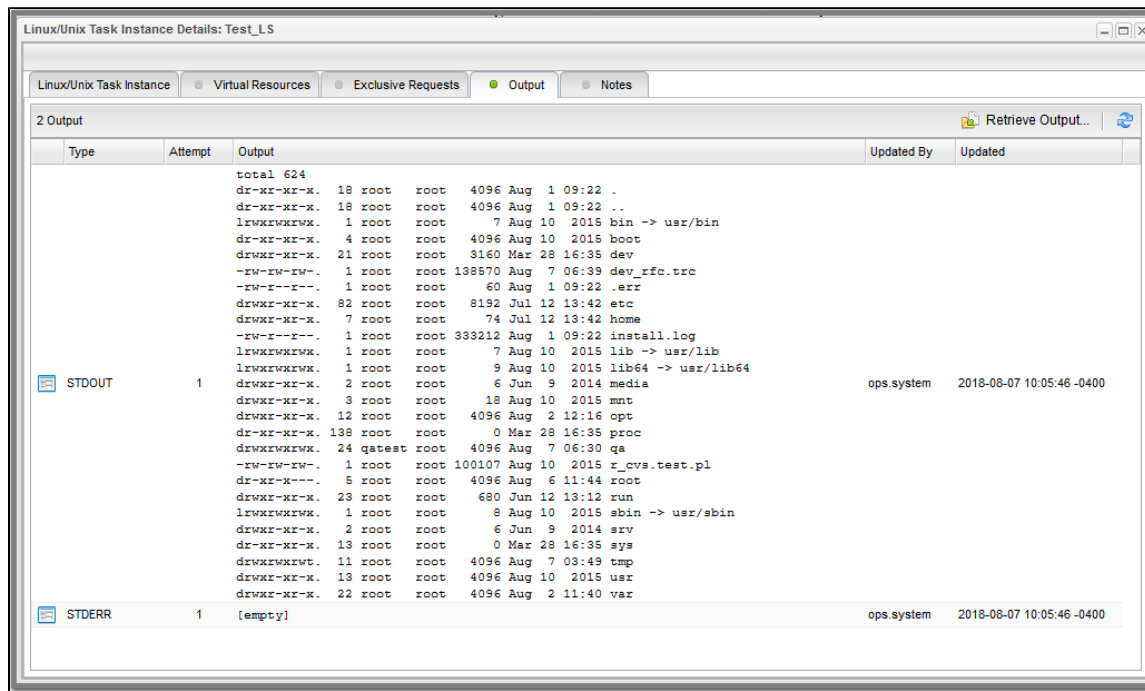
If you want to retrieve data starting at the end of a file, enter -1 in the [Start Line](#) field and the number of lines to retrieve in the [Number of Lines](#) field.

**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.)

Type	Attempt	Output	Updated By	Updated
STDERR	1	[empty]	ops.system	
STDOUT	1	<pre> 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 -&gt; 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 .erf 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 -&gt; usr/lib lrwxrwxrwx.  1 root  root    9 Aug 10 2015 lib64 -&gt; 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 -&gt; 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                     </pre>	ops.system	

**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.



**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. <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified in the task instance Details, the default is 1.</li> <li>• If the <b>Start Line</b> value is <b>-1</b>, data will be retrieved starting at the end of the file.</li> </ul>
Number of Lines	Limit the retrieved data to the <b>Number of Lines</b> value in the task instance Details. If a <b>Number of Lines</b> value is not specified, default is the value of the <b>Retrieve Output Default Number Of Lines</b> 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.
------------	--