



Universal Controller 6.4.x

Triggers and Calendars

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Triggers and Calendars



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The information on these pages also is located in the Universal Controller 6.4.x Triggers and Calendars.pdf.



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Triggers

A trigger specifies times and/or events that trigger the launching of one or more tasks.

When a trigger is satisfied, Universal Controller launches the tasks specified in the trigger. Each trigger can have an unlimited number of tasks associated with it. All of the specified tasks are run each time the trigger is satisfied. If you want to specify dependencies such as "run Task B only if Task A fails," create a [Workflow](#), which is a series of inter-connected tasks.

A built-in [trigger variable](#) is available for returning the trigger name. Additional [built-in variables](#) are supported for specific trigger types.

Trigger Types

Trigger Type	Usage
Application Monitor	Trigger one or more tasks based on the status of one or more application resources.
Composite	Trigger one or more tasks based on multiple file monitoring, task monitoring, variable monitoring, and/or email monitoring events.
Cron	Specify dates and times, using Cron syntax, at which a task will be triggered.
Email Monitor	Trigger one or more Email Monitor tasks.
File Monitor	Trigger one or more tasks based on the creation, deletion, change, existence or non-existence of a file on a particular machine.
Manual	Launch task(s) immediately, while setting or overriding the value of one or more user-defined variables specified in the task(s).
Task Monitor	Trigger one or more tasks based on the conditions specified in an associated Task Monitor task.
Temporary	Set up a one-time trigger for a task, based on a single date and time.
Time	Specify dates and times at which a task will be triggered.
Variable Monitor	Trigger one or more tasks based on the conditions specified in an associated Variable Monitor task.

Creating a Trigger

There are multiple ways to create a trigger:

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

For detailed information on creating a trigger for a specific trigger type, click that trigger type in the [Trigger Types](#) table, above.

All Triggers / Active Triggers Lists

To display a list of all currently defined triggers for all trigger types, from the [Automation Center](#) navigation pane select **Triggers > All Triggers**. The All Triggers list displays.

To display a list of all currently defined and enabled triggers for all trigger types, from the [Automation Center](#) navigation pane select **Triggers > Active Triggers**. The Active Triggers list.



Note

The All Triggers list and the Active Triggers list display the same columns of information about triggers.

Name	Type	Description	Enabled	Next Scheduled Time	Updated By
stonebranch-applicationmonitortrigger-01	Application Monitor		✘		ops.admin
stonebranch-applicationmonitortrigger-02	Application Monitor		✘		ops.admin
stonebranch-applicationmonitortrigger-03	Application Monitor		✘		ops.admin
stonebranch-applicationmonitortrigger-04	Application Monitor		✘		ops.admin
stonebranch-applicationmonitortrigger-05	Application Monitor		✘		ops.admin
stonebranch-compositetrigger-01	Composite		✘		ops.admin
stonebranch-compositetrigger-02	Composite		✘		ops.admin
stonebranch-compositetrigger-03	Composite		✘		ops.admin
stonebranch-compositetrigger-04	Composite		✘		ops.admin
stonebranch-compositetrigger-05	Composite		✘		ops.admin
stonebranch-crontrigger-01	Cron		✘		ops.admin
stonebranch-crontrigger-02	Cron		✘		ops.admin
stonebranch-crontrigger-03	Cron		✘		ops.admin
stonebranch-crontrigger-04	Cron		✘		ops.admin
stonebranch-crontrigger-05	Cron		✘		ops.admin
stonebranch-filemonitortrigger-01	File Monitor		✘		ops.admin
stonebranch-filemonitortrigger-02	File Monitor		✘		ops.admin

All Triggers / Active Triggers Lists Information

The following table provides a description of the default columns that display on the All Triggers and Active Triggers lists.

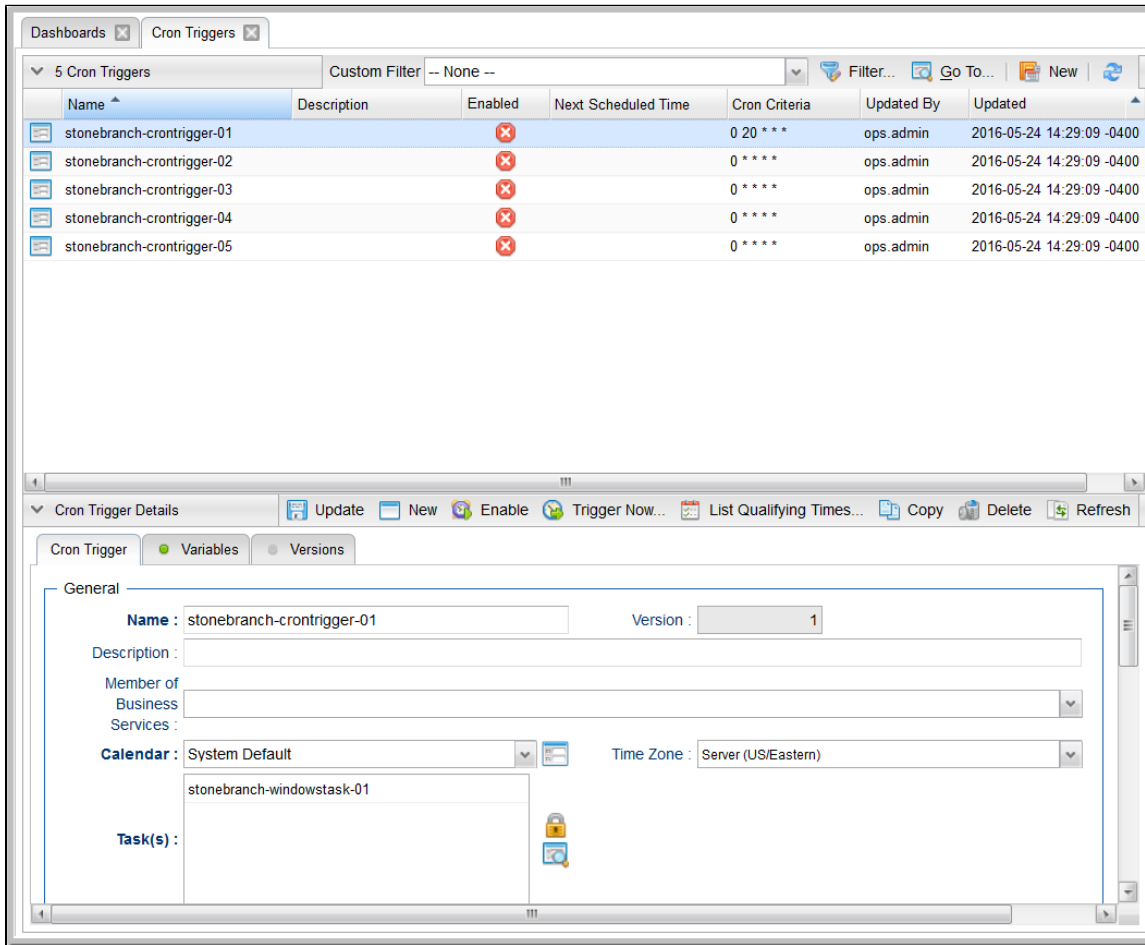
For information about customizing this list, including filtering, sorting, searching, and other list features, see [Record Lists](#).

Column	Description
Name	Name used within the Controller to identify this trigger. It can contain a maximum of 255 alphanumerics. It is the responsibility of the user to develop a workable naming scheme for triggers.
Type	User-defined; type of trigger. Options: <ul style="list-style-type: none"> • Composite • CRON • Time • Temporary • Manual • Email Monitor • File Monitor • Task Monitor • Variable Monitor • Application Monitor
Description	User-defined; description of this trigger.
Next Scheduled Time	System-supplied; for time-based triggers. If Status = Enabled, the next date and time this trigger will be satisfied. See Displaying Trigger Forecast Information .
Enabled	User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable Trigger / Disable Trigger buttons. Only enabled triggers are processed by the Controller.
Updated By	User that triggered or last updated this trigger.
Updated	Date and time this trigger was triggered or last updated.

<Trigger Type> Triggers List

If you select **Triggers > <Trigger Type>** from the [Automation Center](#) navigation pane, a triggers list for that selected trigger type displays.

For example:



<Trigger Type> Triggers List Information

The default columns that display on a <Trigger Type> Triggers list are specific to that type of trigger.

Trigger Details

When you click the Details icon for a trigger in a Triggers List, the Trigger Details displays all currently defined information for that trigger.

Cron Trigger Details: stonebranch-crontrigger-01
Update Enable Trigger Now... List Qualifying Times... Copy Delete Refresh Close

Cron Trigger
Variables Versions

General

Name: Version:

Description:

Member of Business Services:

Calendar: Time Zone:

Task(s):

Purge By Retention Duration:

Status

Forecast: Status:

Skip Count: Disabled By:

Task Launch Skip Condition:

Simulate:

Cron Details

Minutes: Day Logic:

Hours:

Day of Month:

Month:

Day of Week:

Cron Criteria:

Restrictions

Special Restriction: Action:

Simple Restriction: Complex Restriction:

Situation: Restriction Adjective:

Restriction Mode: Restriction Noun:

Restriction Qualifier:

Update Enable Trigger Now... List Qualifying Times... Copy Delete Refresh Close

For information on Details for a specific trigger type, click the appropriate link in [Trigger Types](#), above.

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

Daylight Saving Time

For [Cron](#) and [Time](#) triggers, the Controller handles the switch to and from Daylight Saving Time as described below.

How the time change is handled differs between [interval-based times](#) (such as "every 15 minutes") and [absolute times](#) (such as "2:30 a.m.").

Interval-Based Times

For interval-based time Cron and Time triggers, the behavior is the same.

When Time Moves Forward

An interval-based time Cron or Time trigger defined to run at a time that is being skipped due to the time change will also be "skipped," as shown in the following example; the time zone is Eastern (EST) and the time changes from 2 a.m. EST to 3 a.m. on March 12. In this case, the 15 minute interval trigger will run at the following times:

```
Sunday, March 12, 2017 00:00:00 EST -0500
Sunday, March 12, 2017 00:15:00 EST -0500
Sunday, March 12, 2017 00:30:00 EST -0500
Sunday, March 12, 2017 00:45:00 EST -0500
Sunday, March 12, 2017 01:00:00 EST -0500
Sunday, March 12, 2017 01:15:00 EST -0500
Sunday, March 12, 2017 01:30:00 EST -0500
Sunday, March 12, 2017 01:45:00 EST -0500
Sunday, March 12, 2017 03:00:00 EDT -0400
Sunday, March 12, 2017 03:15:00 EDT -0400
Sunday, March 12, 2017 03:30:00 EDT -0400
Sunday, March 12, 2017 03:45:00 EDT -0400
```

When Time Moves Back

A Time or Cron trigger defined to run at a time that is being repeated due to the time change will also be repeated, as shown in the following example; the time zone is Eastern (EST) and the time changes from 2 a.m. EST to 1 a.m. on November 5. In this case, the 15 minute interval trigger will run at the following times:

```

Sunday, November 05, 2017 00:00:00 EDT -0400
Sunday, November 05, 2017 00:15:00 EDT -0400
Sunday, November 05, 2017 00:30:00 EDT -0400
Sunday, November 05, 2017 00:45:00 EDT -0400
Sunday, November 05, 2017 01:00:00 EDT -0400
Sunday, November 05, 2017 01:15:00 EDT -0400
Sunday, November 05, 2017 01:30:00 EDT -0400
Sunday, November 05, 2017 01:45:00 EDT -0400
Sunday, November 05, 2017 01:00:00 EST -0500
Sunday, November 05, 2017 01:15:00 EST -0500
Sunday, November 05, 2017 01:30:00 EST -0500
Sunday, November 05, 2017 01:45:00 EST -0500
Sunday, November 05, 2017 02:00:00 EST -0500
Sunday, November 05, 2017 02:15:00 EST -0500
Sunday, November 05, 2017 02:30:00 EST -0500
Sunday, November 05, 2017 02:45:00 EST -0500
Sunday, November 05, 2017 03:00:00 EST -0500
Sunday, November 05, 2017 03:15:00 EST -0500
Sunday, November 05, 2017 03:30:00 EST -0500
Sunday, November 05, 2017 03:45:00 EST -0500
    
```

Absolute Times

For absolute time Cron and Time triggers, the behavior is different.

Cron Trigger

Basic Behavior

The behavior of the Cron trigger follows the standard Cron behavior as described in the man page for Cron.

Each line has five time and date fields, followed by a user name if this is the system `crontab` file, followed by a command. Commands are executed by `cron(8)` when the minute, hour, and month of year fields match the current time, and at least one of the two day fields (day of month, or day of week) match the current time. This means that non-existent times, such as "missing hours" during daylight saving conversion, will never match, causing jobs scheduled during the "missing times" not to be run. Similarly, times that occur more than once (again, during daylight savings conversion) will cause matching jobs to be run twice.

When Time Moves Forward

A Cron trigger defined to run at a time that is being skipped due to the time change will also be skipped.

For example: A trigger is defined for every Sunday at 2:30 a.m. On March 12, 2017, the time changes from 2 a.m. EST to 3 a.m., so on March 12 the 2:30 a.m. run is skipped and runs the following Sunday at 2:30 a.m.

When Time Moves Back

A Cron trigger defined to run at a time that is being repeated due to the time change will also be repeated.

For example: A trigger is defined for every Sunday at 1:30 a.m. On November 5, 2017, the time changes from 2 a.m. EDT to 1 a.m., so on November 5 the 1:30 a.m. run is repeated, as shown below:

```
Sunday, November 05, 2017 01:30:00 EDT -0400  
Sunday, November 05, 2017 01:30:00 EST -0500
```

Time Trigger

When Time Moves Forward

A Time trigger defined to run at a time that is being skipped due to the time change will run as though the time did not change; however, the recorded run time will be one hour later.

For example: A trigger is defined for every Sunday at 2:30 a.m. On March 12, 2017, the time changes from 2 a.m. EST to 3 a.m. EST, so on March 12 the 2:30 a.m. run fires at 3:30. The following Sunday, and henceforth, it runs at 2:30 a.m., as shown below:

```
Sunday, March 05, 2017 02:30:00 EST -0500  
Sunday, March 12, 2017 03:30:00 EDT -0400  
Sunday, March 19, 2017 02:30:00 EDT -0400  
Sunday, March 26, 2017 02:30:00 EDT -0400
```

When Time Moves Back

A Time trigger defined to run at a time that is being repeated due to the time change will not be repeated.

For example: A trigger is defined for every Sunday at 1:30 a.m. On November 5, 2017, the time changes from 2 a.m. EDT to 1 a.m. EST, so on November 5 the 1:30 a.m. run fires once, as shown below:

```
Sunday, October 29, 2017 01:30:00 EDT -0400  
Sunday, November 05, 2017 01:30:00 EDT -0400  
Sunday, November 12, 2017 01:30:00 EST -0500  
Sunday, November 19, 2017 01:30:00 EST -0500  
Sunday, November 26, 2017 01:30:00 EST -0500
```

Additional Information

The following pages provide additional information for triggers:

- [Enabling and Disabling Triggers](#)
- [Copying Triggers](#)
- [Triggering with Variables](#)
- [Triggering by Date and Time](#)
- [Displaying Trigger Forecast Information](#)

Cron Trigger

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- [Scheduling a Time Interval](#)
- [Generating a List of Qualifying Times](#)

Overview

The Cron trigger, similar to the [Time trigger](#), allows you to specify dates and times at which a task will be triggered.

With both Cron and Time triggers, you can define:

- Simple date and times, such as "every weekday at 12:00 a.m."
- Specific dates and times, such as "March 15 at 12:00 a.m."
- A series of dates and times, such as "every Friday at every hour."
- A mixture of specific dates/times and a series, such as "every Monday at 9 a.m."
- Complex dates and times, such as "every 3 hours between 8 a.m. and 5 p.m. on the last business day of the year."

(Read [Daylight Saving Time](#) for details about how Universal Controller handles Daylight Saving Time.)

It is recommended that you use a Cron trigger, rather than a Time trigger, if you want to schedule non-standard time intervals for a triggering a task (see [Scheduling a Time Interval](#), below).

Cron Syntax

The Cron trigger uses standard Cron syntax. Once the Cron trigger is entered into the system, the Controller interprets it and processes it as it would any other trigger. The trigger is satisfied when the current date and time match all the values specified in the Minutes, Hours, Day of Month, Month, and Day of Week fields.

Cron Fields

The following table identifies the allowed values for the time and date fields that are used to specify the Cron Criteria in the Cron Trigger Details.

Field Name	Required	Allowed Values	Allowed Special Characters
Minutes	Yes	0-59	* / , -
Hours	Yes	0-23	* / , -
Day of Month	Yes	1-31	* / , -
Month	Yes	1-12 or JAN-DEC	* / , -

Day of Week	Yes	0-7 or SUN (0 or 7)-SAT	* / , -
-------------	-----	-------------------------	---------


Note

The day when a Cron trigger launches can be specified by two fields: **Day of Month** and **Day of Week**. If both fields are restricted (that is, they both are not *), the trigger launches based on the **Day Logic** field value. If **Day Logic** is set to **Or**, when either Day field matches, the trigger can launch. For example: 30 4 1,20 * 5 would cause the trigger to launch at 4:30 a.m. on the 1st and 20th of each month, as well as on every Friday. If, however, **Day Logic** is set to **And**, the trigger would launch at 4:30 a.m. only on days that are the 1st or 20th which are also a Friday.

Cron Special Characters

Asterisk (*)	An asterisk indicates that the expression matches for all values of the field. For example, using * in the Month field indicates every month.
Slash (/)	A slash describes an increment of ranges. For example, 5-50/15 in the Minutes field indicate the fifth minute of the hour and every 15 minutes thereafter until the 50th minute (5,20,35,50).
Hyphen (-)	Defines a range of numbers, which are two numbers separated by a hyphen. The specified range is inclusive. For example, 9-17 in the Hours field means from 9 a.m. to 5 p.m., inclusive.
Comma (,)	Separates items in a list. A list is a set of numbers or ranges separated by commas. For example, 1,5-9,18-20 in the Hours field indicate the following hours 1,5,6,7,8,9,18,19,20.

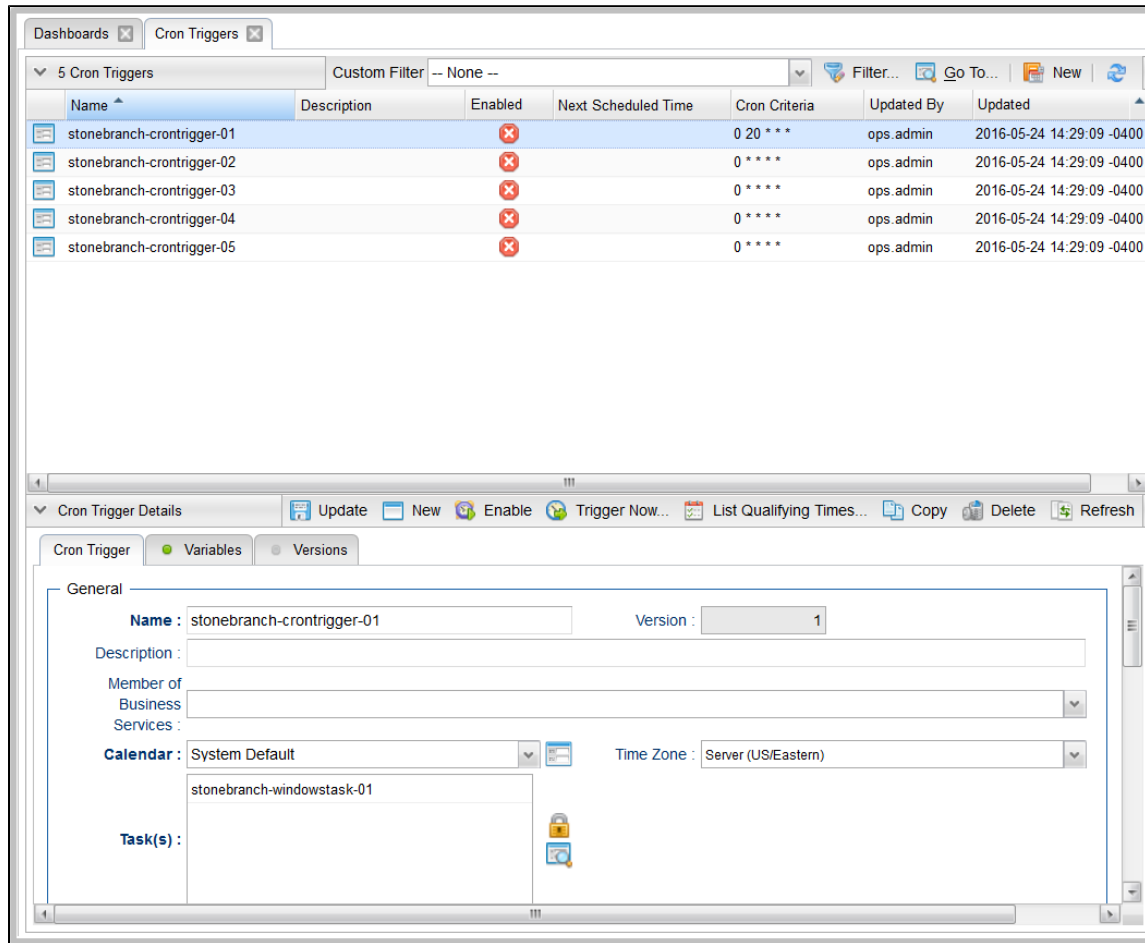
Cron Criteria Examples

Cron Criteria	Description
0 3 30 4,6,9,11 5	At 3 a.m. on the 30th of the month, for months with exactly 30 days, if the 30th is a Friday.
0 3 31 * 0	At 3 a.m. on the 31st of the month if the 31st is a Sunday.
0 3 22-28 * 0	At 3 a.m. on the 4th Sunday of every month.
0 5-19/7 * * *	Every 7 hours between 5 a.m. and 7 p.m., daily.
0 5,12,19 * * 1,3	Every 7 hours between 5 a.m. to 7 p.m. on Monday and Wednesday.
0 9-17 * * Mon-Fri	Every hour between 9 a.m. and 5 p.m. from Monday to Friday.
0 2-11/3 * * *	Every 3 hours between 2 a.m. and 11 a.m., daily.
0 3 29 2 *	At 3 a.m. on February 29th.
30 1-3,17 * * 1,3,5	At 30 minutes past the hours of 1 a.m., 2 a.m., 3 a.m., and 5 p.m. on Monday, Wednesday, and Friday.

Creating a Cron Trigger

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

Below the list, Cron Trigger Details for a new Cron trigger displays.



Step 2 Enter/select Details for a new Cron trigger, 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 trigger is added to the database, and all buttons and tabs in the Trigger Details are enabled.
Step 4	Enable the trigger(s) as desired.



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](#)).

Cron Trigger Details

The following Cron Trigger Details is for an existing Cron trigger. See the [field descriptions](#), below, for a description of the fields that display in the Cron Trigger Details.

Cron Trigger Details: stonebranch-crontrigger-01

Update Enable Trigger Now... List Qualifying Times... Copy Delete Refresh Close

General

Name: stonebranch-crontrigger-01 Version: 2

Description:

Member of Business Services:

Calendar: System Default Time Zone: Server (US/Eastern)

Task(s): stonebranch-windowstask-01

Purge By Retention Duration:

Status

Forecast: Skip Count: 0 Status: Disabled

Task Launch Skip Condition: -- None -- Disabled By:

Simulate: -- System Default --

Cron Details

Minutes: 0 Hours: * Day Logic: And

Day of Month: * Month: * Day of Week: *

Cron Criteria: 0 * * * *

Restrictions

Special Restriction: [checked] Action: Do Not Trigger

Simple Restriction: [checked] Complex Restriction: [checked]

Situation: On Holiday Restriction Adjective: Every

Restriction Mode: Or Restriction Noun: Day

Restriction Qualifier: Year


Update Enable Trigger Now... List Qualifying Times... Copy Delete Refresh Close

Cron Trigger Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Cron Trigger Details.

Field Name	Description
------------	-------------


General	This section contains general information about the trigger.
Name	Name used within the Controller to identify this trigger. It can contain a maximum of 255 alphanumerics. It is the responsibility of the user to develop a workable naming scheme for triggers.
Version	System-supplied; version number of the current record, which is incremented by the system every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	User-defined; description of this trigger.
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to.
Calendar	Calendar that defines the business days, holidays, and other special days that determine the run dates for the task(s) specified in the trigger. Select a Calendar from the drop-down list of all existing Calendars. To display detailed information about a selected calendar, click the Details icon next to the Calendar field.
Time Zone	User-defined; allows you to specify the time zone that will be applied to the time(s) specified in the trigger. For example, if you specify 23:00 and a time zone of Canada/Central, the task will run at 11:00 p.m. Central Canada time.
Task(s)	Name of the task(s) being triggered when this trigger is satisfied. When selecting tasks from the Details, click on the lock icon to unlock the field and select tasks .
Purge By Retention Duration	Specification for whether triggered task instances can be purged by retention duration .
Exclude Backup	If Purge By Retention Duration is selected; Specification for whether qualifying task instances can be excluded from the backup when being purged by retention duration.
Retention Duration	If Purge By Retention Duration is selected; Minimum retention duration for the selected Retention Duration Unit before triggered task instances can qualify for purge.
Retention Duration Unit	If Purge By Retention Duration is selected; Retention duration unit. Options: <ul style="list-style-type: none"> • Hours • Days

Execution User	Read-only; Execution user that has been selected (via the Assign Execution User action) to override the execution user of task instances being launched by the trigger.
Status	This section contains information about the current status of the trigger.
Forecast	<p>If checked, the Controller calculates the date and time when this trigger will be satisfied for the next number of days, as specified in the Forecast Period In Days Universal Controller system property.</p> <p>The Controller writes the forecasting entries to the Forecasts List.</p> <div data-bbox="323 448 1919 553" style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> Note If this field is checked on a trigger and the trigger is promoted, it will not be checked for that trigger on the target system.</p> </div>
Status	User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable / Disable buttons. Only enabled triggers are processed by the Controller.
Skip Count	User-defined; allows you to specify that the Controller should skip the next <i>N</i> times this task is triggered.
Enabled By	System-supplied. If Status = Enabled, ID of the user who most recently enabled this trigger.
Disabled By	System-supplied; If Status = Disabled, ID of the user who most recently enabled this trigger. (By default, all new triggers are disabled.)
Task Launch Skip Condition	<p>User-defined; Controls when launching a task for the trigger will be skipped.</p> <p>Options:</p> <ul style="list-style-type: none"> • – None – Do not skip the task launch. • Active Skip the task launch if a previous instance is still active. • Active By Trigger Skip the task launch if a previous instance launched by the trigger is still active.
Next Scheduled Time	System-supplied; for time-based triggers. If Status = Enabled, the next date and time this trigger will be satisfied. See Displaying Trigger Forecast Information .

Simulate	<p>Enables the override of the Enable Trigger Simulation Universal Controller system property specification for whether or not to simulate the launching of tasks when triggers are eligible to fire. (If simulation is enabled, only the scheduled launch of the task by the trigger is inhibited.)</p> <p>Options:</p> <ul style="list-style-type: none"> • -- System Default -- - Use the system default for enabling / disabling trigger simulation as specified by Enable Trigger Simulation. • True - Enable trigger simulation • False - Disable trigger simulation.
Cron Details	This section contains assorted detailed information about the trigger.
Minutes	Time in minutes, using standard Cron syntax.
Hours	Time in hours, using standard Cron syntax. (See also Daylight Saving Time .)
Day of Month	Day of the month, using standard Cron syntax.
Month	Required. Month, using standard Cron syntax.
Day of Week	Day of the week, using standard Cron syntax.
Cron Criteria	System-supplied; summary of the Cron specifications. Also displays in the Cron Criteria column on the Cron Triggers list .
Day Logic	Specification for whether to And the Day of Month with the Day of Week criteria or to Or the Day of Month with the Day of Week criteria.
Restrictions	This section specifies any restrictions that apply to the trigger.
Special Restriction	Enable this field in order to specify additional parameters that tell the Controller how to handle exceptions, such as when the trigger is satisfied on a holiday or non-business day. You can specify simple and/or complex restrictions. For example, you can specify a Simple Restriction that disables the trigger if it is satisfied on a holiday identified in the calendar and/or a Complex Restriction that disables the trigger on the last business day of every month.

<p>Action</p>	<p>If Special Restriction is enabled, allows you to select an action to take on a non-business day or holiday (see Situation field).</p> <p>Options:</p> <ul style="list-style-type: none"> • Do Not Trigger • Next Day (run on the next day) • Next Business Day (run on the next business day, as defined in the calendar) • Previous Day (run on the previous day) • Previous Business Day (run on the previous business day, as defined in the calendar)
<p>Simple Restriction</p>	<p>If enabled, allows you to specify an action (see Action field) such as Do Not Trigger on a non-business day or holiday (see Situation field). For example, do not trigger on a non-business day.</p>
<p>Situation</p>	<p>If Simple Restriction is enabled, allows you to select the situation that causes the system to initiate the action specified in the Action field.</p> <p>Options:</p> <ul style="list-style-type: none"> • On Non Business Day • On Holiday
<p>Complex Restriction</p>	<p>If enabled, allows you to specify a set of parameters that determine one or more situations when this trigger should not be satisfied. Used in conjunction with the following fields: Restriction Mode, Restriction Adjective, Restriction Noun, Restriction Qualifier. For example, you may specify that you do not want to satisfy this trigger on the last business day of the year or the first day of each month.</p>
<p>Restriction Mode</p>	<p>If both Simple Restriction and Complex Restriction are enabled, specifies whether you want to use both restriction types (AND) or one or the other (OR).</p> <p>Options:</p> <ul style="list-style-type: none"> • And • Or
<p>Restriction Adjective</p>	<p>If Complex Restriction is enabled, the type of selection.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Last <p>Example: The last business day of the month.</p>

Restriction Noun	<p>If Complex Restriction is enabled, the day you want to select.</p> <p>Options:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day • Business Day • Custom Day <p>Example: The last business day of the month.</p>
Restriction Qualifier	<p>If Complex Restriction is enabled, the period you are selecting from.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom period <p>Example: The last quarter of the year.</p>
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Trigger Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Enable	Activates this trigger and writes your User ID to the Enabled By field.

Disable	Deactivates this trigger.
Trigger Now...	<p>Immediately triggers all the tasks specified in this trigger.</p> <p>Optionally, you also can select to:</p> <ul style="list-style-type: none"> • Launch the task(s) specified in the trigger with one or more variables. • Launch the task(s) specified in the trigger by a specified date and time. • Launch the task(s) specified in the trigger but place them in Held status; they will not run until they are released. <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note If you click Trigger Now... for an Enabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of the Enabled By user.</p> <p>If you click Trigger Now... for a Disabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of your user name and ID.</p> <p>If you click Trigger Now... for an Enabled or Disabled trigger that has an assigned Execution User, the trigger will launch its task(s) under the context of the assigned Execution User.</p> </div>
List Qualifying Times	Lets you generate a list of future dates and times that the trigger will trigger the specified task (see Generating a List of Qualifying Times , below).
Copy	Creates a copy of this trigger, which you are prompted to rename.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this trigger.
Tabs	This section identifies the tabs across the top of the Trigger Details that provide access to additional information about the trigger.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning .

Scheduling a Time Interval

A Cron trigger lets you schedule a time interval for how often a task will be triggered. You also can select a time frame that restricts the time during which the trigger is active, so that a task will be triggered only at the time intervals within that time frame.

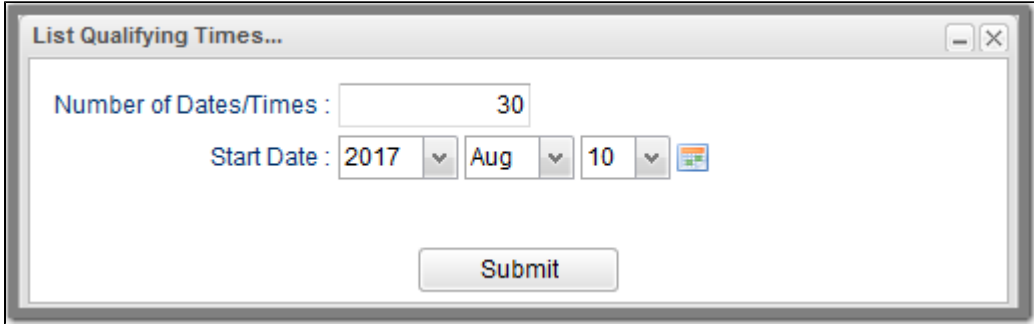
The time interval for a Cron trigger resets at the end of the day; when the 24-hour clock expires, the time interval count begins again at 12 a.m. on the next specified day. Therefore, if you select a time interval for multiple days, the task will be triggered at the same times each day.

Although you also can use a [Time trigger](#) to schedule a time interval for a task to be triggered on multiple days, you should use a Cron trigger if the time interval is not one by which the 24-hour clock is even divisible (2, 3, 4, 6, 8, and 12), such as in the [Cron criteria examples](#), above. Using a Time trigger to schedule this type of time interval could produce unexpected results, since the time interval for a Time trigger does not reset at the end of the day. It continues into the next day, regardless of the 24-hour clock (see [Scheduling a Time Interval with a Time Trigger](#)).

Conversely, if you want to trigger a task on multiple days at a time interval without regard to the time of day, and the interval is not one by which the 24-hour clock is even divisible, you must use a Time trigger, which will not reset at the end of the day. For example, if you want to trigger a task every 5 hours, from Monday to Friday, without regard to the time of day, a Time trigger will allow you to trigger the task on Monday at 12 a.m., 5 a.m., 10 a.m., 3 p.m., 8 p.m. and then next (5 hours later) on Tuesday at 1 a.m.. This time interval scheduling cannot be accomplished with a Cron trigger.

Generating a List of Qualifying Times

The Controller allows you to generate a list of future dates and times that a trigger will trigger the specified task.

Step 1	Click the List Qualifying Times button in the Cron Trigger Details. The List Qualifying Times Input dialog displays.
	
Step 2	Select a Number of Dates/Times (1 - 1000) that you want to list. The default is 30.
Step 3	Select a Start Date from when you want the list to begin.
Step 4	Click the Submit button to generate the list. For example:

The screenshot shows a window titled "Qualifying Times" with a close button. The main content area displays the trigger name **stonebranch-crontrigger-02**. Below this, there is a "Listing From: 2017-08-10 11:42:45 -0400" section with a printer icon. The main list shows the time zone "User/Trigger Timezone: America/New_York" and a series of time slots from 12:00:00 EDT -0400 on Thursday, August 10, 2017, to 09:00:00 EDT -0400 on Friday, August 11, 2017. The list is scrollable and has alternating blue and white background colors for each row.

User/Trigger Timezone: America/New_York
Thursday, August 10, 2017 12:00:00 EDT -0400
Thursday, August 10, 2017 13:00:00 EDT -0400
Thursday, August 10, 2017 14:00:00 EDT -0400
Thursday, August 10, 2017 15:00:00 EDT -0400
Thursday, August 10, 2017 16:00:00 EDT -0400
Thursday, August 10, 2017 17:00:00 EDT -0400
Thursday, August 10, 2017 18:00:00 EDT -0400
Thursday, August 10, 2017 19:00:00 EDT -0400
Thursday, August 10, 2017 20:00:00 EDT -0400
Thursday, August 10, 2017 21:00:00 EDT -0400
Thursday, August 10, 2017 22:00:00 EDT -0400
Thursday, August 10, 2017 23:00:00 EDT -0400
Friday, August 11, 2017 00:00:00 EDT -0400
Friday, August 11, 2017 01:00:00 EDT -0400
Friday, August 11, 2017 02:00:00 EDT -0400
Friday, August 11, 2017 03:00:00 EDT -0400
Friday, August 11, 2017 04:00:00 EDT -0400
Friday, August 11, 2017 05:00:00 EDT -0400
Friday, August 11, 2017 06:00:00 EDT -0400
Friday, August 11, 2017 07:00:00 EDT -0400
Friday, August 11, 2017 08:00:00 EDT -0400
Friday, August 11, 2017 09:00:00 EDT -0400
Friday, August 11, 2017 10:00:00 EDT -0400

Friday, August 11, 2017 10:00:00 EDT -0400

Time Trigger

- [Overview](#)
- [Creating a Time Trigger](#)
 - [Time Trigger Details](#)
 - [Time Trigger Details Field Descriptions](#)
- [Scheduling a Time Interval](#)
 - [Restrict Times](#)
- [Generating a List of Qualifying Times](#)

Overview

The Time trigger, similar to the [Cron trigger](#), allows you to specify dates and times at which a task will be triggered.

With both Time and Cron triggers, you can define:

- Simple date and times, such as "every weekday at 12:00 a.m."
- Specific dates and times, such as "March 15 at 12:00 a.m."
- A series of dates and times, such as "every Friday at every hour."
- A mixture of specific dates/times and a series, such as "every Monday at 9 a.m."
- Complex dates and times, such as "every 3 hours between 8 a.m. and 5 p.m. on the last business day of the year."

(Read [Daylight Saving Time](#) for details about how Universal Controller handles Daylight Saving Time.)

If you want to schedule time intervals for triggering a task on multiple days, use the trigger type (Time or a Cron) that allows you to most accurately select the scheduling parameters (see [Scheduling a Time Interval](#), below).

Creating a Time Trigger

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

Below the list, Time Trigger Details for a new Time trigger displays.

The screenshot shows the 'Time Triggers' list with 5 entries. Below the list, the 'Time Trigger Details' form is displayed, showing fields for Name, Description, Member of Business Services, Calendar, Time Zone, and Task(s).

Name	Description	Enabled	Next Scheduled Time	Time Style	Day Style	Updated ...	Updated
stonebranch-timetrigger-01		✘		Time	Simple	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-timetrigger-02	Run Every Two Hours Du...	✘		Time Interval	Simple	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-timetrigger-03		✘		Time	Simple	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-timetrigger-04		✘		Time	Simple	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-timetrigger-05		✘		Time	Complex	ops.admin	2016-05-24 14:29:09 -0400

Time Trigger Details

Time Trigger | Variables | Versions

General

Name :

Description :

Member of Business Services :

Calendar : System Default | Time Zone : Server (US/Eastern)

Task(s) :

Step 2 Enter/select Details for a new Time trigger, 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 trigger is added to the database, and all buttons and tabs in the Trigger Details are enabled.
Step 4	Enable the trigger(s) as desired.



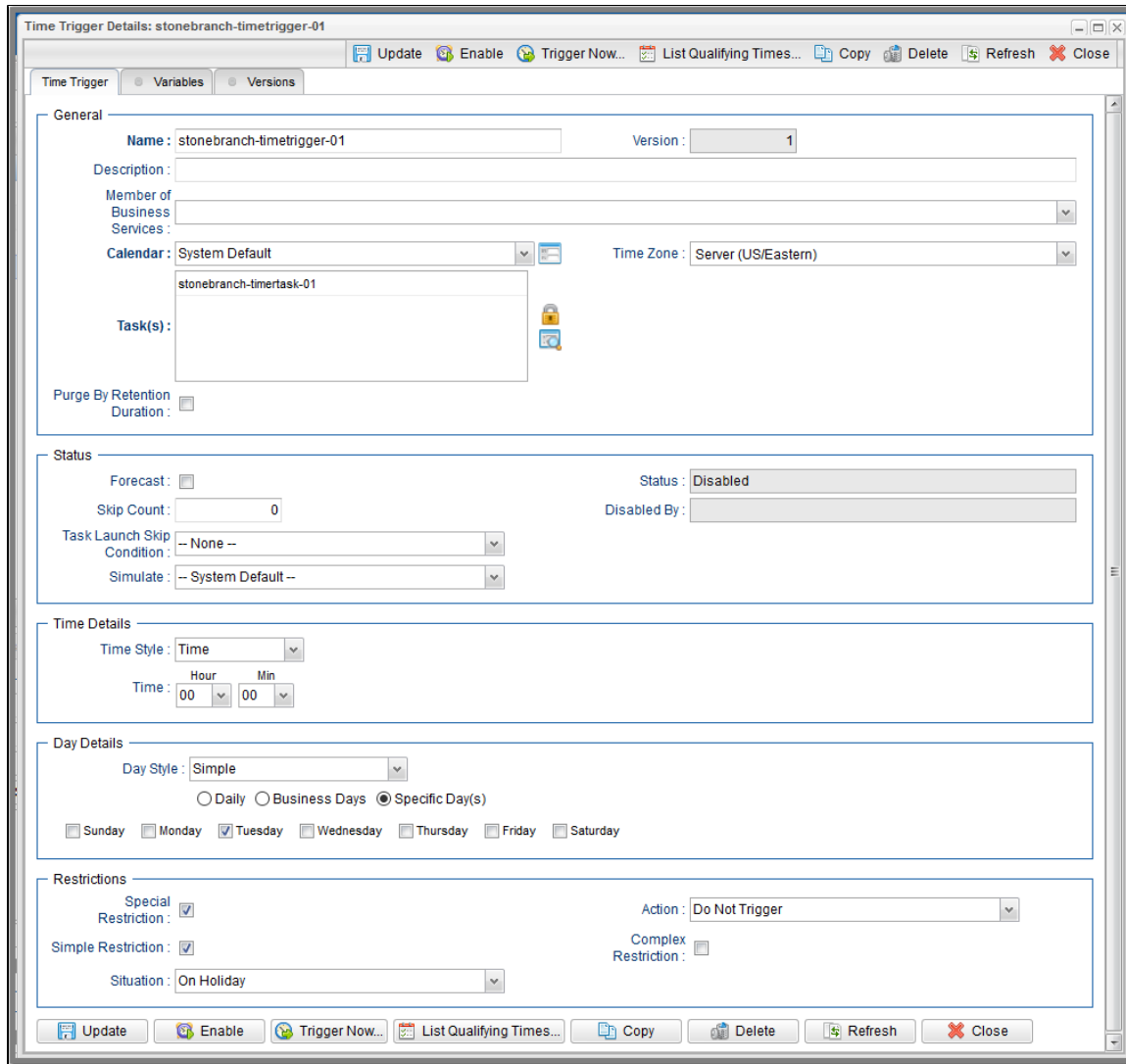
Note

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](#)).

Time Trigger Details

The following Time Trigger Details is for an existing Time trigger. See the [field descriptions](#) below for a description of the fields that display in the Time Trigger Details.





Time Trigger Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Time Trigger Details.

Field Name	Description
General	This section contains general information about the trigger.

Name	Name used within the Controller to identify this trigger. It can contain a maximum of 255 alphanumerics. It is the responsibility of the user to develop a workable naming scheme for triggers.
Version	System-supplied; version number of the current record, which is incremented by the system every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	User-defined; description of this trigger.
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to.
Calendar	Calendar that defines the business days, holidays, and other special days that determine the run dates for the task(s) specified in the trigger. Select a Calendar from the drop-down list of all existing Calendars. To display detailed information about a selected calendar, click the Details icon next to the Calendar field.
Time Zone	User-defined; allows you to specify the time zone that will be applied to the time(s) specified in the trigger. For example, if you specify 23:00 and a time zone of Canada/Central, the task will run at 11:00 p.m. Central Canada time.
Task(s)	Name of the task(s) being triggered when this trigger is satisfied. When selecting tasks from the Details, click on the lock icon to unlock the field and select tasks .
Purge By Retention Duration	Specification for whether triggered task instances can be purged by retention duration .
Exclude Backup	If Purge By Retention Duration is selected; Specification for whether qualifying task instances can be excluded from the backup when being purged by retention duration.
Retention Duration	If Purge By Retention Duration is selected; Minimum retention duration for the selected Retention Duration Unit before triggered task instances can qualify for purge.
Retention Duration Unit	If Purge By Retention Duration is selected; Retention duration unit. Options: <ul style="list-style-type: none"> • Hours • Days

Execution User	Read-only; Execution user that has been selected (via the Assign Execution User action) to override the execution user of task instances being launched by the trigger.
Status	This section contains information about the current status of the trigger.
Forecast	<p>If checked, the Controller calculates the date and time when this trigger will be satisfied for the next number of days, as specified in the Forecast Period In Days Universal Controller system property.</p> <p>The Controller writes the forecasting entries to the Forecasts List.</p> <div data-bbox="323 448 1919 553" style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> Note If this field is checked on a trigger and the trigger is promoted, it will not be checked for that trigger on the target system.</p> </div>
Status	User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable / Disable buttons. Only enabled triggers are processed by the Controller.
Skip Count	User-defined; allows you to specify that the Controller should skip the next <i>N</i> times this task is triggered.
Enabled By	System-supplied. If Status = Enabled, ID of the user who most recently enabled this trigger.
Disabled By	System-supplied; If Status = Disabled, ID of the user who most recently enabled this trigger. (By default, all new triggers are disabled.)
Task Launch Skip Condition	<p>User-defined; Controls when launching a task for the trigger will be skipped.</p> <p>Options:</p> <ul style="list-style-type: none"> • – None – Do not skip the task launch. • Active Skip the task launch if a previous instance is still active. • Active By Trigger Skip the task launch if a previous instance launched by the trigger is still active.
Next Scheduled Time	System-supplied; for time-based triggers. If Status = Enabled, the next date and time this trigger will be satisfied. See Displaying Trigger Forecast Information .

Simulate	Enables the override of the Enable Trigger Simulation Universal Controller system property specification for whether or not to simulate the launching of tasks when triggers are eligible to fire. (If simulation is enabled, only the scheduled launch of the task by the trigger is inhibited.) Options: <ul style="list-style-type: none"> • – System Default – - Use the system default for enabling / disabling trigger simulation as specified by Enable Trigger Simulation. • True - Enable trigger simulation • False - Disable trigger simulation.
Time Details	This section contains assorted detailed information about the trigger.
Time Style	Specifies whether this trigger is for a specific time or a series of times. Options: <ul style="list-style-type: none"> • Time - Triggers the task at a specific time. <ul style="list-style-type: none"> • Required field: Time. • Time Interval - Triggers the task at specific intervals of times. <ul style="list-style-type: none"> • Required fields: Time Interval, Time Interval Units. • Optional fields: Enable Offset, Restrict Times.
Time	Required if Time Style = Time; time of the trigger in hours and minutes, using 24-hour time. For example, 01:45 means trigger the task at 1:45 a.m.; 13:45 means trigger the task at 1:45 p.m. (See also Daylight Saving Time .)
Time Interval	Required if Time Style = Time Interval; number of Time Interval Units . For example, for a Time Interval of every three hours, specify 3 in this field and select Hours in the Time Interval Units field. <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> Note See Scheduling a Time Interval, below, for information on using a Time Trigger to schedule a time interval for triggering a task.</p> </div>
Time Interval Units	Required if Time Style = Time Interval; Type of time interval. Used in conjunction with the Time Interval field. For example, for a Time Interval of every three hours, specify 3 in the Time Interval field and select Hours in this field. Options: <ul style="list-style-type: none"> • Seconds • Minutes • Hours
Enable Offset	If Time Style = Time Interval, allows you to define (in the Initial Time Offset field) a starting time, in minutes offset from the hour, for the trigger to run.


<p>Initial Time Offset (hh:mm)</p>	<p>If Enable Offset is selected, allows you to define a starting time, in minutes offset from the hour.</p> <p>The default value (*) lets you select a starting hour (0 to 23) other than the next hour.</p> <p>For example:</p> <ul style="list-style-type: none"> • If you want the task to run every 30 minutes at the :15 and :45 minute mark, you would select Time Interval = 30, Time Interval Units = minutes, and Initial Time Offset = *:15. • If you want the task to run every 30 minutes at the :15 and :45 minute mark starting at 6:15 p.m., you would select Time Interval = 30, Time Interval Units = minutes, and Initial Time Offset = 18:15.
<p>Day Details</p>	<p>This section contains assorted detailed information about the trigger day.</p>
<p>Day Style</p>	<p>Allows you to indicate when this trigger will be run:</p> <p>Options:</p> <ul style="list-style-type: none"> • Simple - Trigger is run every day, on business days, or on one or more specific days, depending on what you select in the Daily, Business Days, and Specific Day(s) fields (see below). • Complex - Trigger is run on one or more days selected by a formula specified using the Date Adjective, Date Noun, and Date Qualifier fields (see below). • Every - Trigger is run at an interval of a specified number of days (see Day Interval, below) starting on a specified date (see Interval Start, below).
<p>Daily</p>	<p>If Day Style = Simple, allows you to specify that the trigger is active every day of the week.</p>
<p>Business Days</p>	<p>If Day Style = Simple, allows you to specify that the trigger is active on the business days specified in the calendar selected in the Calendar field.</p>
<p>Specific Day(s)</p>	<p>If Day Style = Simple, allows you to specify one or more specific days of the week that the trigger is active in the calendar selected in the Calendar field.</p>
<p>Date Adjective</p>	<p>If Day Style = Complex, allows you to specify which in a series of days you want to select. Used in conjunction with the Date Noun and the Date Qualifier fields.</p> <p>For example, to specify "the 15th business day of the month," select Date Adjective = Nth, Date Noun = Business Day, Date Qualifier = Month, and Nth Amount = 15.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Nth • Last

Nth Amount	<p>If Day Adjective = Nth, allows you to specify the value of N.</p>
Date Noun	<p>If Day Style = Complex, allows you to specify the type of day you want to select. Used in conjunction with the Date Adjective and the Date Qualifier fields.</p> <p>For example, to specify "the 15th business day of the month," select Date Adjective = Nth, Date Noun = Business Day, Date Qualifier = Month, and Nth Amount = 15.</p> <p>This drop-down menu is populated as follows:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day = any day • Business Day = The business days specified in the calendar selected in the Calendar field. • Any Custom Days specified in the calendar selected in the Calendar field.
Date Qualifier	<p>If Day Style = Complex, allows you to specify the period for your selection formula. Used in conjunction with the Date Noun and Date Adjective fields.</p> <p>For example, to specify "the 15th business day of the month," select Date Adjective = Nth, Date Noun = Business Day, Date Qualifier = Month, and Nth Amount = 15.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom Period (see Creating Custom Days)
Date Adjustment	<p>If Day Style = Complex, allows you to adjust your date setting by a less or plus number of Days or Business Days.</p> <p>For example, to specify the 2nd to last day of the month (last day of the month less one day), select Date Adjective = Last, Date Noun = Day, Date Qualifier = Month, Date Adjustment = Less, Adjustment Amount = 1, and Adjustment Type = Day.</p> <p>Options:</p> <ul style="list-style-type: none"> • None • Less • Plus <p>Default is None.</p>
Adjustment Amount	<p>Required if Day Adjustment = Less or Plus; Allows you to specify the number of Days or Business Days to adjust your date setting. Maximum is 366. Default is 1.</p>

Adjustment Type	<p>If Day Adjustment = Less or Plus, allows you to specify the type of day by which to adjust your date setting.</p> <p>Options:</p> <ul style="list-style-type: none"> • Day • Business Day
Day Interval	<p>If Day Style = Every, allows you to specify the interval (in days) at which this trigger will run.</p>
Interval Start	<p>If Day Style = Every, allows you to specify the first day of the interval on which this trigger will run.</p>
Restrictions	<p>This section specifies any restrictions that apply to the trigger.</p>
Restrict Times	<p>If Time Style = Time Interval, period during which the trigger is active. Enable this field and specify the start and end times in the Enabled Start and Enabled End fields.</p>
Enabled Start	<p>If Restrict Times is enabled, allows you to specify the start time of the period during which the trigger should be active. Use 24-hour time.</p>
Enabled End	<p>If Restrict Times is enabled, allows you to specify the end time of the period during which the trigger should be active. Use 24-hour time.</p>
Adjust Interval To Enabled Start	<p>If Restrict Times is enabled; Specification for whether to always begin at the Enabled Start, regardless of the time interval, or to begin based on the actual interval. If Adjust Interval To Enabled Start is not selected, the start time and end time specify only the time frame/window during which the trigger is active; they do not modify the actual time interval (see Restrict Times).</p>
Special Restriction	<p>Enable this field in order to specify additional parameters that tell the Controller how to handle exceptions, such as when the trigger is satisfied on a holiday or non-business day. You can specify simple and/or complex restrictions. For example, you can specify a Simple Restriction that disables the trigger if it is satisfied on a holiday identified in the calendar and/or a Complex Restriction that disables the trigger on the last business day of every month.</p>
Simple Restriction	<p>If enabled, allows you to specify an action (see Action field) such as Do Not Trigger on a non-business day or holiday (see Situation field). For example, do not trigger on a non-business day.</p>
Situation	<p>If Simple Restriction is enabled, allows you to select the situation that causes the system to initiate the action specified in the Action field.</p> <p>Options:</p> <ul style="list-style-type: none"> • On Non Business Day • On Holiday

<p>Action</p>	<p>If Special Restriction is enabled, allows you to select an action to take on a non-business day or holiday (see Situation field).</p> <p>Options:</p> <ul style="list-style-type: none"> • Do Not Trigger • Next Day (run on the next day) • Next Business Day (run on the next business day, as defined in the calendar) • Previous Day (run on the previous day) • Previous Business Day (run on the previous business day, as defined in the calendar)
<p>Complex Restriction</p>	<p>If enabled, allows you to specify a set of parameters that determine one or more situations when this trigger should not be satisfied. Used in conjunction with the following fields: Restriction Mode, Restriction Adjective, Restriction Noun, Restriction Qualifier. For example, you may specify that you do not want to satisfy this trigger on the last business day of the year or the first day of each month.</p>
<p>Restriction Mode</p>	<p>If both Simple Restriction and Complex Restriction are enabled, specifies whether you want to use both restriction types (AND) or one or the other (OR).</p> <p>Options:</p> <ul style="list-style-type: none"> • And • Or
<p>Restriction Adjective</p>	<p>If Complex Restriction is enabled, the type of selection.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Last <p>Example: The last business day of the month.</p>
<p>Restriction Noun</p>	<p>If Complex Restriction is enabled, the day you want to select.</p> <p>Options:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day • Business Day • Custom Day <p>Example: The last business day of the month.</p>

Restriction Qualifier	<p>If Complex Restriction is enabled, the period you are selecting from.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom period <p>Example: The last quarter of the year.</p>
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Trigger Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Enable	Activates this trigger and writes your User ID to the Enabled By field.
Disable	Deactivates this trigger.

Trigger Now...	<p>Immediately triggers all the tasks specified in this trigger.</p> <p>Optionally, you also can select to:</p> <ul style="list-style-type: none"> • Launch the task(s) specified in the trigger with one or more variables. • Launch the task(s) specified in the trigger by a specified date and time. • Launch the task(s) specified in the trigger but place them in Held status; they will not run until they are released. <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note If you click Trigger Now... for an Enabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of the Enabled By user.</p> <p>If you click Trigger Now... for a Disabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of your user name and ID.</p> <p>If you click Trigger Now... for an Enabled or Disabled trigger that has an assigned Execution User, the trigger will launch its task(s) under the context of the assigned Execution User.</p> </div>
List Qualifying Times	<p>Lets you generate a list of future dates and times that the trigger will trigger the specified task (see Generating a List of Qualifying Times, below).</p>
Copy	<p>Creates a copy of this trigger, which you are prompted to rename.</p>
Delete	<p>Deletes the current record.</p>
Refresh	<p>Refreshes any dynamic data displayed in the Details.</p>
Close	<p>For pop-up view only; closes the pop-up view of this trigger.</p>
Tabs	<p>This section identifies the tabs across the top of the Trigger Details that provide access to additional information about the trigger.</p>
Variables	<p>Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.</p>
Versions	<p>Stores copies of all previous versions of the current record. See Record Versioning.</p>

Scheduling a Time Interval

A Time trigger [time interval](#) lets you specify how often a task will be triggered, but for triggering a task on multiple days, you may not be able to specify the same time every day that the task will be triggered. This could produce unexpected results.

By default, a time interval count begins at 12 a.m.. If you schedule a time interval for a task to be triggered on multiple days, the task will be triggered at the first specified time interval, and then again whenever the time interval is reached. When the 24-hour clock expires, the time interval count does not reset to 12 a.m.; it continues into the next day. If the time interval is not one by which the 24-hour clock is even divisible (2, 3, 4, 6, 8, and 12), the task will be triggered at different times than on the first day.



Note

See [Daylight Saving Time](#) for information on how it impacts time intervals.

For example, if you want a task to be triggered at the same time every 4 hours from Monday to Friday, a Time trigger will trigger the task on Monday at 4 a.m., 8 a.m., 12 p.m., 4 p.m., 8 p.m., and Tuesday at 12 a.m.. 4 hours later, at 4 a.m. - it will again start triggering the task every 4 hours. Since the time interval (4) divides evenly into 24, the task is triggered at the same time every day, and results will be as expected.

However, if you want a task to be triggered every 7 hours from Monday to Friday, a Time trigger will trigger the task on Monday at 7 a.m., 2 p.m., and 9 p.m., and then - 7 hours later - Tuesday at 4 a.m. The time interval "rolls over" to the next day. It does not restart at 12:00 a.m. when the 24-hour clock expires, and so the task will not be triggered at the same time every day. The same results will occur if you use [Restrict Times](#), below, for the time interval.

Therefore, for scheduling time intervals by which the 24-hour clock is not evenly divisible, it is recommended that instead you use a [Cron trigger](#).

For example:

Time Details

Time Style: Time Interval

Time Interval: 4

Time Interval Units: Hours

Enable Offset:

Restrict Times

If you are triggering a task on a time interval, the [Restrict Times](#) field lets you select a time frame during which the trigger is active. The task will be triggered at the specified time interval only when the time interval occurs during the specified Restrict Times.

For example, if you want a task to be triggered every 4 hours from Monday to Friday and only between the hours of 8 a.m. (Enabled Start) and 7 p.m. (Enabled End), a Time trigger will check the time on Monday at 4 a.m., 8 a.m., 12 p.m., 4 p.m., 8 p.m., and Tuesday at 12 a.m., but only will trigger the task at 8:00 a.m., 12 p.m., and 4 p.m. (the only three 4-hour interval times between 8 a.m. and 7 p.m.). On Tuesday at 12 a.m., it will continue checking the time every 4 hours and will trigger the task at the same times it did on Monday.

However, if you want a task to be triggered every 7 hours from Monday to Friday and only between the hours of 8 a.m. and 7 p.m., a Time trigger will check the time on Monday at 12 a.m., 7 a.m., 2 p.m., and 9 p.m., but only will trigger the task at 2 p.m. (the only 7-hour interval time between 8 a.m. and 7 p.m.). On Monday at 9 p.m., it will continue checking the time every 7 hours, beginning on Tuesday at 4 a.m., and will trigger the task on Tuesday at 11 a.m. and 6 p.m. (both of which are 7-hour interval times between 8 a.m. and 7 p.m.).

For example:

Restrictions

Restrict Times:

Enabled Start: Hour: 00 Min: 00

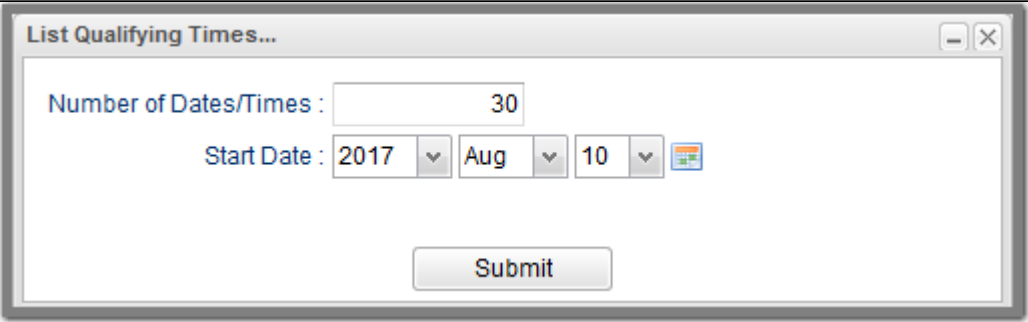
Enabled End: Hour: 00 Min: 00

Adjust Interval To Enabled Start:

Special Restriction:

Generating a List of Qualifying Times

The Controller allows you to generate a list of future dates and times that a trigger will trigger the specified task.

Step 1	Click the List Qualifying Times button in the Time Trigger Details. The List Qualifying Times Input dialog displays. 
Step 2	Select a Number of Dates/Times (1 - 1000) that you want to list. The default is 30.
Step 3	Select a Start Date from when you want the list to begin.

Step 4 Click the **Submit** button to generate the list. For example:

stonebranch-timetrigger-01

Listing From: 2017-08-10 10:47:01 -0500

User TimeZone: America/New_York	Trigger Timezone: SystemV/EST5
Thursday, August 10, 2017 11:48:01 EDT -0400	Thursday, August 10, 2017 10:48:01 EST -0500
Thursday, August 10, 2017 11:49:01 EDT -0400	Thursday, August 10, 2017 10:49:01 EST -0500
Thursday, August 10, 2017 11:50:01 EDT -0400	Thursday, August 10, 2017 10:50:01 EST -0500
Thursday, August 10, 2017 11:51:01 EDT -0400	Thursday, August 10, 2017 10:51:01 EST -0500
Thursday, August 10, 2017 11:52:01 EDT -0400	Thursday, August 10, 2017 10:52:01 EST -0500
Thursday, August 10, 2017 11:53:01 EDT -0400	Thursday, August 10, 2017 10:53:01 EST -0500
Thursday, August 10, 2017 11:54:01 EDT -0400	Thursday, August 10, 2017 10:54:01 EST -0500
Thursday, August 10, 2017 11:55:01 EDT -0400	Thursday, August 10, 2017 10:55:01 EST -0500
Thursday, August 10, 2017 11:56:01 EDT -0400	Thursday, August 10, 2017 10:56:01 EST -0500
Thursday, August 10, 2017 11:57:01 EDT -0400	Thursday, August 10, 2017 10:57:01 EST -0500
Thursday, August 10, 2017 11:58:01 EDT -0400	Thursday, August 10, 2017 10:58:01 EST -0500
Thursday, August 10, 2017 11:59:01 EDT -0400	Thursday, August 10, 2017 10:59:01 EST -0500
Thursday, August 10, 2017 12:00:01 EDT -0400	Thursday, August 10, 2017 11:00:01 EST -0500
Thursday, August 10, 2017 12:01:01 EDT -0400	Thursday, August 10, 2017 11:01:01 EST -0500
Thursday, August 10, 2017 12:02:01 EDT -0400	Thursday, August 10, 2017 11:02:01 EST -0500
Thursday, August 10, 2017 12:03:01 EDT -0400	Thursday, August 10, 2017 11:03:01 EST -0500
Thursday, August 10, 2017 12:04:01 EDT -0400	Thursday, August 10, 2017 11:04:01 EST -0500
Thursday, August 10, 2017 12:05:01 EDT -0400	Thursday, August 10, 2017 11:05:01 EST -0500
Thursday, August 10, 2017 12:06:01 EDT -0400	Thursday, August 10, 2017 11:06:01 EST -0500
Thursday, August 10, 2017 12:07:01 EDT -0400	Thursday, August 10, 2017 11:07:01 EST -0500
Thursday, August 10, 2017 12:08:01 EDT -0400	Thursday, August 10, 2017 11:08:01 EST -0500
Thursday, August 10, 2017 12:09:01 EDT -0400	Thursday, August 10, 2017 11:09:01 EST -0500
Thursday, August 10, 2017 12:10:01 EDT -0400	Thursday, August 10, 2017 11:10:01 EST -0500

Manual Trigger

- Overview
- Creating a Manual Trigger and Triggering One or More Tasks
 - Manual Trigger Details
 - Manual Trigger Details Field Descriptions
- Entering Variables
 - Using the Trigger with Variables Menu Option
 - Using the Variables Tab

Overview

The Manual trigger allows you to launch a task immediately, while setting or overriding the value of one or more user-defined variables specified in the task.

Use a Manual trigger if you want to manually launch a task but cannot use the **Launch Task** or **Trigger Now** buttons because you have to set or override one or more variables. For example, you might choose to use a Manual trigger to launch a "generic" Workflow that you run occasionally with a slight variation in specific details. In this case, you will launch the Workflow and pass in the appropriate details using variables.

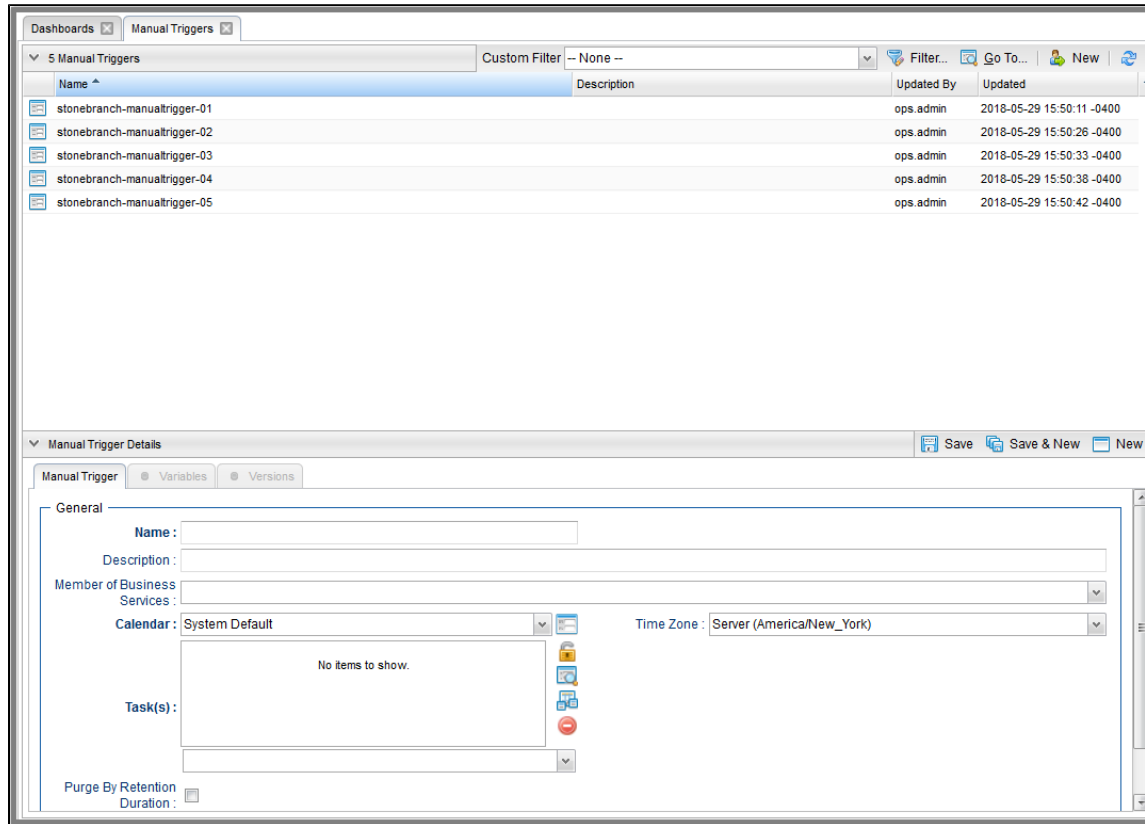
You can use the Manual trigger to set values to pre-existing variables or create new variables. The variable values you enter here override all others. However, the change in value only persists while this launched task instance(s) is running. Future executions of the task(s), unless they are launched by a Manual trigger, will use the [standard methods for resolving user-defined variables](#).

The audit message created when you use a Manual trigger is the same as **Trigger Now**.

Creating a Manual Trigger and Triggering One or More Tasks

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

Below the list, Manual Trigger Details for a new Manual trigger displays.



Step 2 Enter/select Details for a new Manual trigger, 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 trigger is added to the database, and all buttons and tabs in the Trigger Details are enabled.

Step 4 Enable the trigger(s) as desired.



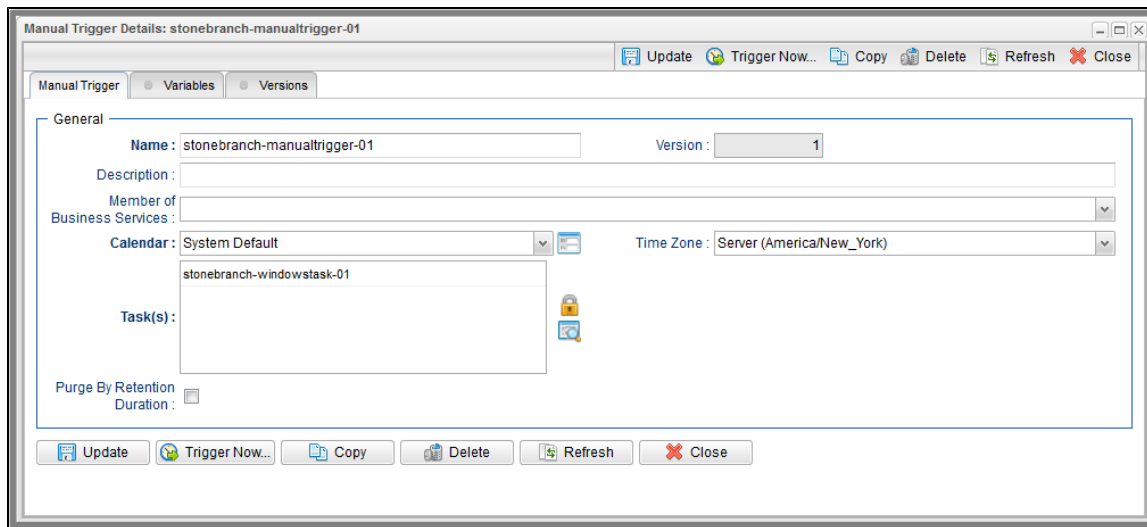
Note

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 Trigger Details

The following Manual Trigger Details is for an existing Manual trigger. See the [field descriptions](#), below, for a description of the fields that display in the Manual Trigger Details.




Manual Trigger Details Field Descriptions

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

Field Name	Description
General	This section contains general information about the trigger.

Name	Name used within the Controller to identify this trigger. It can contain a maximum of 255 alphanumeric characters. It is the responsibility of the user to develop a workable naming scheme for triggers.
Version	System-supplied; version number of the current record, which is incremented by the system every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	User-defined; description of this trigger.
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to.
Calendar	Calendar that defines the business days, holidays, and other special days that determine the run dates for the task(s) specified in the trigger. Select a Calendar from the drop-down list of all existing Calendars. To display detailed information about a selected calendar, click the Details icon next to the Calendar field.
Time Zone	User-defined; allows you to specify the time zone that will be applied to the time(s) specified in the trigger. For example, if you specify 23:00 and a time zone of Canada/Central, the task will run at 11:00 p.m. Central Canada time.
Task(s)	Name of the task(s) being triggered when this trigger is satisfied. When selecting tasks from the Details, click on the lock icon to unlock the field and select tasks .
Purge By Retention Duration	Specification for whether triggered task instances can be purged by retention duration .
Exclude Backup	If Purge By Retention Duration is selected; Specification for whether qualifying task instances can be excluded from the backup when being purged by retention duration.
Retention Duration	If Purge By Retention Duration is selected; Minimum retention duration for the selected Retention Duration Unit before triggered task instances can qualify for purge.
Retention Duration Unit	If Purge By Retention Duration is selected; Retention duration unit. Options: <ul style="list-style-type: none"> • Hours • Days

Execution User	Read-only; Execution user that has been selected (via the Assign Execution User action) to override the execution user of task instances being launched by the trigger.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Trigger Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Trigger Now	<p>Immediately triggers all the tasks specified in this trigger.</p> <p>Optionally, you also can select to:</p> <ul style="list-style-type: none"> • Launch the task(s) specified in the trigger with one or more variables. • Launch the task(s) specified in the trigger by a specified date and time. • Launch the task(s) specified in the trigger but place them in Held status; they will not run until they are released. <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note If you click Trigger Now... for an Enabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of the Enabled By user.</p> <p>If you click Trigger Now... for a Disabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of your user name and ID.</p> <p>If you click Trigger Now... for an Enabled or Disabled trigger that has an assigned Execution User, the trigger will launch its task(s) under the context of the assigned Execution User.</p> </div>
Copy	Creates a copy of this trigger, which you are prompted to rename.

Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this trigger.
Tabs	This section identifies the tabs across the top of the Trigger Details that provide access to additional information about the trigger.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning .

Entering Variables

Two methods are available for entering variables:

1. Use the **Trigger With Variables** [Action menu](#) item.
2. Use the **Variables** tab and **Trigger Now** button.

If you want to preserve information about the variables you are setting or overriding (the name and value), or if you want to specify default values, use the Variables tab. If you set up a Manual trigger with default values in the Variables tab, any values you set using the Trigger With Variables popup window override the values in the Variables tab. Each method is described below.

Using the Trigger with Variables Menu Option

Step 1	Select a trigger from the Manual Triggers list.
Step 2	Access the Action menu .
Step 2	Select Trigger Now With Variables . A Trigger Now pop-up window displays that lets you set or override the values of up to 10 variables that will be used in the execution of the task(s) named in the Manual trigger. These can be existing or new variables. Any existing variables are automatically populated in the window.
Step 3	Click Submit to launch the tasks named in the trigger. The variable information in the Trigger Now pop-up is passed into the task instance(s) where referenced and the contents of the pop-up are deleted.

Using the Variables Tab

Step 1	Click the Variables tab.
Step 2	Use the New button to add the variables you want to set.
Step 3	When you are finished, click the Manual Trigger tab and then click the Trigger Now button to launch the tasks named in the trigger.

Temporary Trigger

- [Overview](#)
- [Creating a Temporary Trigger](#)
 - [Temporary Trigger Details](#)
 - [Temporary Trigger Details Field Descriptions](#)

Overview

The Temporary trigger allows you to set up a one-time trigger for a task, based on a single date and time. You will use this trigger if you want to set up a task to run once at some time in the future.

Creating a Temporary Trigger

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

Below the list, Temporary Trigger Details for a new Temporary trigger displays.

The screenshot shows the 'Temporary Triggers' list in the Automation Center. The list contains five entries, all with 'Enabled' status set to 'No' (indicated by a red 'X' icon). The details pane below shows the 'General' tab for a new trigger, with fields for Name, Description, Member of Business, Services, Calendar (set to System Default), and Time Zone (set to Server (US/Eastern)). The Task(s) field is currently empty, displaying 'No items to show.'

Name	Description	Enabled	Next Scheduled Time	Date	Time	Updated By	Updated
stonebranch-temporarytrigger-01		No	2014-06-13 00:00:00 -0400	2014-06-13	00:00	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-temporarytrigger-02		No	2014-06-13 00:00:00 -0400	2014-06-13	00:00	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-temporarytrigger-03		No	2014-06-13 00:00:00 -0400	2014-06-13	00:00	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-temporarytrigger-04		No	2014-06-13 00:00:00 -0400	2014-06-13	00:00	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-temporarytrigger-05		No	2014-06-13 00:00:00 -0400	2014-06-13	00:00	ops.admin	2016-05-24 14:29:09 -0400

Step 2	<p>Enter/select Details for a new Temporary trigger, using the field descriptions below as a guide.</p> <ul style="list-style-type: none"> • Required fields display in boldface. • Default values for fields, if available, display automatically. <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> • 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 trigger is added to the database, and all buttons and tabs in the Trigger Details are enabled.
Step 4	Enable the trigger(s) as desired.



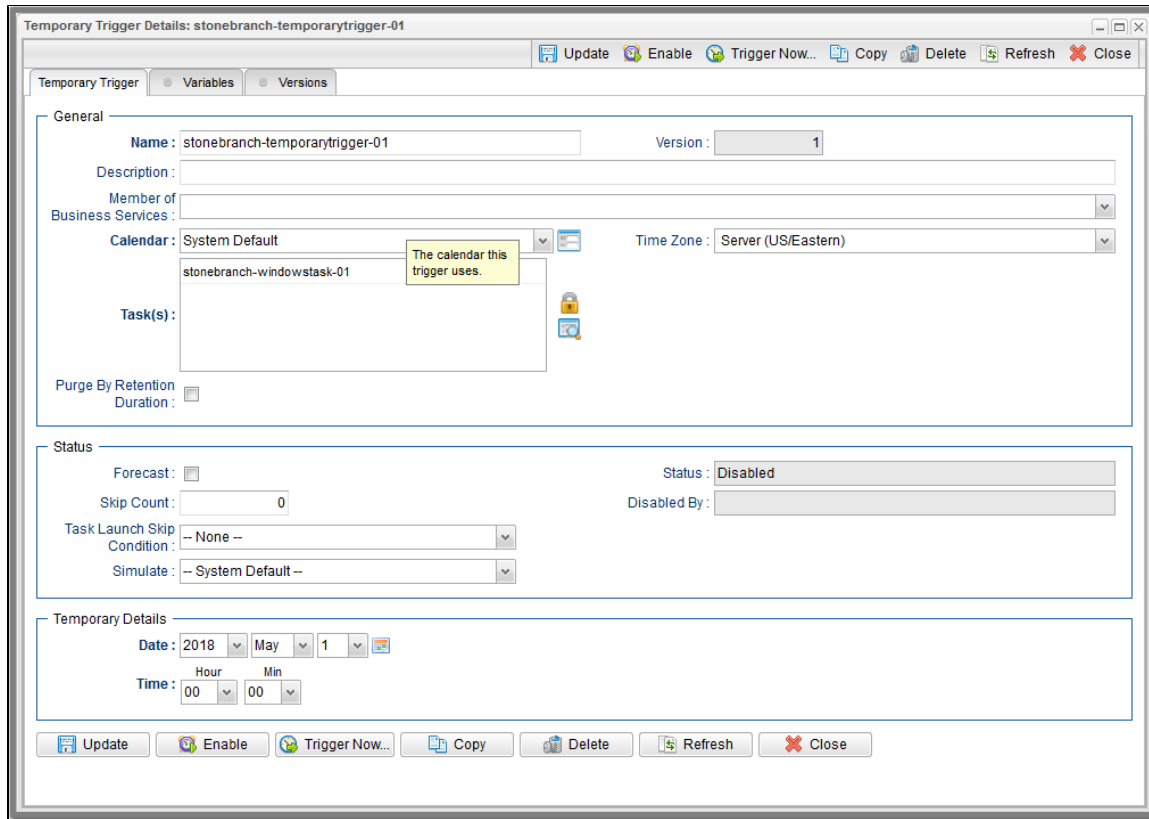
Note

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](#)).

Temporary Trigger Details

The following Temporary Trigger Details is for an existing Temporary trigger. See the [field descriptions](#), below, for a description of the fields that display in the Temporary Trigger Details.




Temporary Trigger Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Temporary Trigger Details.

Field Name	Description
General	This section contains general information about the trigger.
Name	Name used within the Controller to identify this trigger. It can contain a maximum of 255 alphanumeric characters. It is the responsibility of the user to develop a workable naming scheme for triggers.
Version	System-supplied; version number of the current record, which is incremented by the system every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .

Description	User-defined; description of this trigger.
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to.
Calendar	Calendar that defines the business days, holidays, and other special days that determine the run dates for the task(s) specified in the trigger. Select a Calendar from the drop-down list of all existing Calendars. To display detailed information about a selected calendar, click the Details icon next to the Calendar field.
Time Zone	User-defined; allows you to specify the time zone that will be applied to the time(s) specified in the trigger. For example, if you specify 23:00 and a time zone of Canada/Central, the task will run at 11:00 p.m. Central Canada time.
Task(s)	Name of the task(s) being triggered when this trigger is satisfied. When selecting tasks from the Details, click on the lock icon to unlock the field and select tasks .
Purge By Retention Duration	Specification for whether triggered task instances can be purged by retention duration .
Exclude Backup	If Purge By Retention Duration is selected; Specification for whether qualifying task instances can be excluded from the backup when being purged by retention duration.
Retention Duration	If Purge By Retention Duration is selected; Minimum retention duration for the selected Retention Duration Unit before triggered task instances can qualify for purge.
Retention Duration Unit	If Purge By Retention Duration is selected; Retention duration unit. Options: <ul style="list-style-type: none"> • Hours • Days
Execution User	Read-only; Execution user that has been selected (via the Assign Execution User action) to override the execution user of task instances being launched by the trigger.
Status	This section contains information about the current status of the trigger.

Forecast	<p>If checked, the Controller calculates the date and time when this trigger will be satisfied for the next number of days, as specified in the Forecast Period In Days Universal Controller system property.</p> <p>The Controller writes the forecasting entries to the Forecasts List.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note If this field is checked on a trigger and the trigger is promoted, it will not be checked for that trigger on the target system.</p> </div>
Status	<p>User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable / Disable buttons. Only enabled triggers are processed by the Controller.</p>
Skip Count	<p>User-defined; allows you to specify that the Controller should skip the next <i>N</i> times this task is triggered.</p>
Enabled By	<p>System-supplied. If Status = Enabled, ID of the user who most recently enabled this trigger.</p>
Disabled By	<p>System-supplied; If Status = Disabled, ID of the user who most recently enabled this trigger. (By default, all new triggers are disabled.)</p>
Task Launch Skip Condition	<p>User-defined; Controls when launching a task for the trigger will be skipped.</p> <p>Options:</p> <ul style="list-style-type: none"> • – None – Do not skip the task launch. • Active Skip the task launch if a previous instance is still active. • Active By Trigger Skip the task launch if a previous instance launched by the trigger is still active.
Next Scheduled Time	<p>System-supplied; for time-based triggers. If Status = Enabled, the next date and time this trigger will be satisfied. See Displaying Trigger Forecast Information.</p>
Simulate	<p>Optional. Enables the override of the Enable Trigger Simulation Universal Controller system property specification for whether or not to simulate the launching of tasks when triggers are eligible to fire. (If simulation is enabled, only the scheduled launch of the task by the trigger is inhibited.)</p> <p>Options:</p> <ul style="list-style-type: none"> • -- System Default -- - Use the system default for enabling / disabling trigger simulation as specified by Enable Trigger Simulation. • True - Enable trigger simulation • False - Disable trigger simulation.

Temporary Details	This section contains assorted detailed information about the trigger.
Date	Date you want the trigger to be satisfied.
Time (hh.mm)	Required. Specifies the time of the trigger in hours and minutes. For example, 01:45 means trigger the task at 1:45 a.m.; 13:45 means trigger the task at 1:45 p.m.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Trigger Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Enable	Activates this trigger and writes your User ID to the Enabled By field.
Disable	Deactivates this trigger.

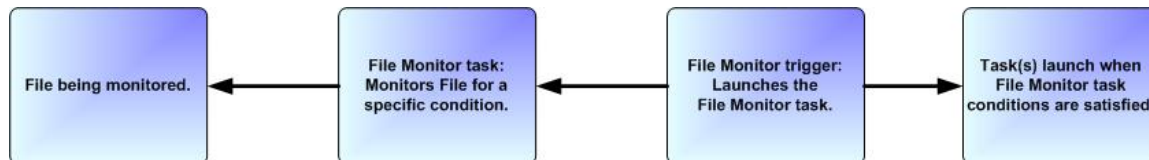
<p>Trigger Now...</p>	<p>Immediately triggers all the tasks specified in this trigger.</p> <p>Optionally, you also can select to:</p> <ul style="list-style-type: none"> • Launch the task(s) specified in the trigger with one or more variables. • Launch the task(s) specified in the trigger by a specified date and time. • Launch the task(s) specified in the trigger but place them in Held status; they will not run until they are released. <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note If you click Trigger Now... for an Enabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of the Enabled By user.</p> <p>If you click Trigger Now... for a Disabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of your user name and ID.</p> <p>If you click Trigger Now... for an Enabled or Disabled trigger that has an assigned Execution User, the trigger will launch its task(s) under the context of the assigned Execution User.</p> </div>
<p>Copy</p>	<p>Creates a copy of this trigger, which you are prompted to rename.</p>
<p>Delete</p>	<p>Deletes the current record.</p>
<p>Refresh</p>	<p>Refreshes any dynamic data displayed in the Details.</p>
<p>Close</p>	<p>For pop-up view only; closes the pop-up view of this trigger.</p>
<p>Tabs</p>	<p>This section identifies the tabs across the top of the Trigger Details that provide access to additional information about the trigger.</p>
<p>Variables</p>	<p>Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.</p>
<p>Versions</p>	<p>Stores copies of all previous versions of the current record. See Record Versioning.</p>

File Monitor Trigger

- Overview
- Built-In Variables
- Prerequisites
- Creating a File Monitor Trigger
 - File Monitor Trigger Details
 - File Monitor Trigger Details Field Descriptions

Overview

The File Monitor trigger allows you to trigger one or more tasks based on the creation, deletion, change, existence or non-existence of a file on a particular machine, as specified by a selected File Monitor task, as illustrated below. For a detailed description, see [Launching a File Monitor Task Using a File Monitor Trigger](#).



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](#).

Built-In Variables

The built-in variables outlined below can be used to pass data where appropriate:

- [Task and Task Instance Variables](#)
- [File Monitor Variables](#).

Prerequisites

Before you can use a File Monitor Trigger, you need the following:

- A [Windows, Linux/Unix, or z/OS agent](#), which will execute the File Monitor task.
- A [File Monitor task](#), which watches for the creation, deletion, change, existence, or non-existence of a file.



Note

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

Creating a File Monitor Trigger

Step 1 From the [Automation Center](#) navigation pane, select **Triggers > File Monitor Triggers**. The File Monitor Triggers list displays.

Below the list, File Monitor Trigger Details for a new File Monitor trigger displays.

The screenshot shows the 'File Monitor Triggers' interface. At the top, there are tabs for 'Dashboards' and 'File Monitor Triggers'. Below this is a list of 5 File Monitor Triggers. The list has columns for Name, Description, Enabled, File Monitor, Monitor Status, Updated By, and Updated. All triggers are currently disabled (indicated by a red 'X' in the Enabled column) and are associated with the 'stonebranch-filemonitor-01' File Monitor. Below the list, the 'File Monitor Trigger Details' section is open, showing a form for creating a new trigger. The form has tabs for 'File Monitor Trigger', 'Variables', and 'Versions'. The 'General' tab is active, showing fields for Name, Description, Member of Business, Services, Calendar (set to System Default), and Time Zone (set to Server (US/Eastern)). The Task(s) section is currently empty, displaying 'No items to show.'

Name	Description	Enabled	File Monitor	Monitor Status	Updated By	Updated
stonebranch-filemonitortrigger-01			stonebranch-filemonitor-01		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-filemonitortrigger-02			stonebranch-filemonitor-01		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-filemonitortrigger-03			stonebranch-filemonitor-01		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-filemonitortrigger-04			stonebranch-filemonitor-01		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-filemonitortrigger-05			stonebranch-filemonitor-01		ops.admin	2016-05-24 14:29:09 -0400

Step 2	<p>Enter/select Details for a new File Monitor trigger, using the field descriptions below as a guide.</p> <ul style="list-style-type: none"> • Required fields display in boldface. • Default values for fields, if available, display automatically. <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> • 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 trigger is added to the database, and all buttons and tabs in the Trigger Details are enabled.
Step 4	Enable the trigger(s) as desired.



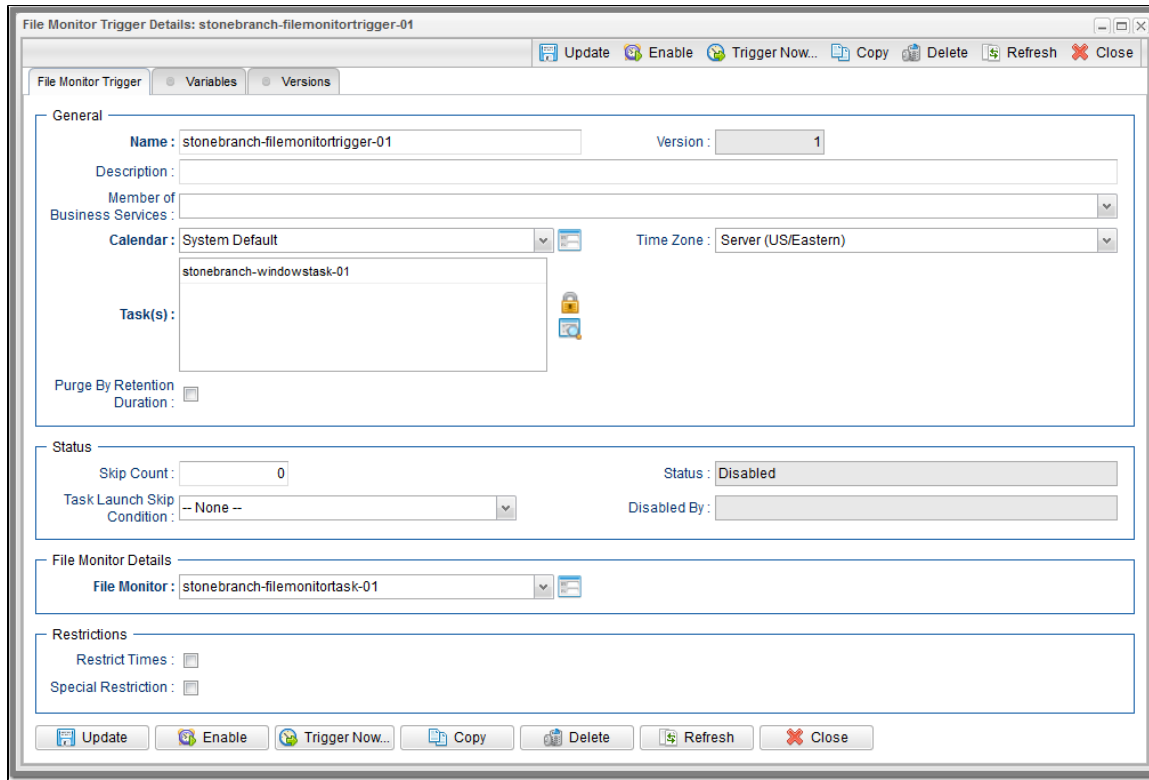
Note

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 Trigger Details

The following File Monitor Trigger Details is for an existing File Monitor trigger. See the [field descriptions](#), below, for a description of the fields that display in the File Monitor Trigger Details.



File Monitor Trigger Details Field Descriptions

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


Field Name	Description
General	This section contains general information about the trigger.
Name	Name used within the Controller to identify this trigger. It can contain a maximum of 255 alphanumeric characters. It is the responsibility of the user to develop a workable naming scheme for triggers.
Version	System-supplied; version number of the current record, which is incremented by the system every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	User-defined; description of this trigger.

Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to.
Calendar	Calendar that defines the business days, holidays, and other special days that determine the run dates for the task(s) specified in the trigger. Select a Calendar from the drop-down list of all existing Calendars. To display detailed information about a selected calendar, click the Details icon next to the Calendar field.
Time Zone	User-defined. Allows you to specify the time zone that will be applied to the times specified in the Restrict Times parameters. For example, if you specify an Enabled Start of 23:00, an Enabled End of 24:00, and a time zone of Canada/Central, the trigger is enabled at 11:00 p.m. and disabled at 12:00 a.m., Central Canada time.
Task(s)	Name of the task(s) being triggered when this trigger is satisfied. When selecting tasks from the Details, click on the lock icon to unlock the field and select tasks .
Purge By Retention Duration	Specification for whether triggered task instances can be purged by retention duration .
Exclude Backup	If Purge By Retention Duration is selected; Specification for whether qualifying task instances can be excluded from the backup when being purged by retention duration.
Retention Duration	If Purge By Retention Duration is selected; Minimum retention duration for the selected Retention Duration Unit before triggered task instances can qualify for purge.
Retention Duration Unit	If Purge By Retention Duration is selected; Retention duration unit. Options: <ul style="list-style-type: none"> • Hours • Days
Execution User	Read-only; Execution user that has been selected (via the Assign Execution User action) to override the execution user of task instances being launched by the trigger.
Status	This section contains information about the current status of the trigger.
Skip Count	User-defined; allows you to specify that the Controller should skip the next <i>N</i> times this task is triggered.

Task Launch Skip Condition	<p>User-defined; Controls when launching a task for the trigger will be skipped.</p> <p>Options:</p> <ul style="list-style-type: none"> • – None – Do not skip the task launch. • Active Skip the task launch if a previous instance is still active. • Active By Trigger Skip the task launch if a previous instance launched by the trigger is still active.
Status	<p>User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable / Disable buttons. Only enabled triggers are processed by the Controller.</p>
Enabled By	<p>System-supplied. If Status = Enabled, ID of the user who most recently enabled this trigger.</p>
Disabled By	<p>System-supplied; If Status = Disabled, ID of the user who most recently enabled this trigger. (By default, all new triggers are disabled.)</p>
File Monitor Details	<p>This section contains assorted detailed information about the trigger.</p>
File Monitor	<p>Required; File Monitor task being executed. Enter a task name, select a task from the drop-down list, or click the Task Details icon to create a new task. If a task already is specified in this field, click the Task Details icon to view the Details of that task.</p>
Running Monitor	<p>System-supplied; Name of the currently running task instance of the specified File Monitor task that was launched by this enabled trigger.</p>
Restrictions	<p>This section specifies any restrictions that apply to the trigger.</p>
Restrict Times	<p>Period during which the trigger is active. Enable this field and specify the start and end times in the Enabled Start and Enabled End fields.</p>
Enabled Start	<p>If Restrict Times is enabled, allows you to specify the start time of the period during which the trigger should be active. Use 24-hour time.</p>
Enabled End	<p>If Restrict Times is enabled, allows you to specify the end time of the period during which the trigger should be active. Use 24-hour time.</p>

<p>Special Restriction</p>	<p>Enable this field in order to specify additional parameters that tell the Controller how to handle exceptions, such as when the trigger is satisfied on a holiday or non-business day. You can specify simple and/or complex restrictions. For example, you can specify a Simple Restriction that disables the trigger if it is satisfied on a holiday identified in the calendar and/or a Complex Restriction that disables the trigger on the last business day of every month.</p>
<p>Simple Restriction</p>	<p>If enabled, allows you to specify an action (see Action field) such as Do Not Trigger on a non-business day or holiday (see Situation field). For example, do not trigger on a non-business day.</p>
<p>Situation</p>	<p>If Simple Restriction is enabled, allows you to select the situation that causes the system to initiate the action specified in the Action field.</p> <p>Options:</p> <ul style="list-style-type: none"> • On Non Business Day • On Holiday
<p>Action</p>	<p>If Special Restriction is enabled, allows you to select an action to take on a non-business day or holiday (see Situation field).</p> <p>Options:</p> <ul style="list-style-type: none"> • Do Not Trigger • Next Day (run on the next day) • Next Business Day (run on the next business day, as defined in the calendar) • Previous Day (run on the previous day) • Previous Business Day (run on the previous business day, as defined in the calendar)
<p>Complex Restriction</p>	<p>If enabled, allows you to specify a set of parameters that determine one or more situations when this trigger should not be satisfied. Used in conjunction with the following fields: Restriction Mode, Restriction Adjective, Restriction Noun, Restriction Qualifier. For example, you may specify that you do not want to satisfy this trigger on the last business day of the year or the first day of each month.</p>
<p>Restriction Mode</p>	<p>If both Simple Restriction and Complex Restriction are enabled, specifies whether you want to use both restriction types (AND) or one or the other (OR).</p> <p>Options:</p> <ul style="list-style-type: none"> • And • Or

<p>Restriction Adjective</p>	<p>If Complex Restriction is enabled, the type of selection.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Last <p>Example: The last business day of the month.</p>
<p>Restriction Noun</p>	<p>If Complex Restriction is enabled, the day you want to select.</p> <p>Options:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day • Business Day • Custom Day <p>Example: The last business day of the month.</p>
<p>Restriction Qualifier</p>	<p>If Complex Restriction is enabled, the period you are selecting from.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom period <p>Example: The last quarter of the year.</p>
<p>Metadata</p>	<p>This section contains Metadata information about this record.</p>
<p>UUID</p>	<p>Universally Unique Identifier of this record.</p>
<p>Updated By</p>	<p>Name of the user that last updated this record.</p>
<p>Updated</p>	<p>Date and time that this record was last updated.</p>
<p>Created By</p>	<p>Name of the user that created this record.</p>
<p>Created</p>	<p>Date and time that this record was created.</p>
<p>Buttons</p>	<p>This section identifies the buttons displayed above and below the Trigger Details that let you perform various actions.</p>
<p>Save</p>	<p>Saves a new task record in the Controller database.</p>

Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Enable	Activates this trigger and writes your User ID to the Enabled By field.
Disable	Deactivates this trigger.
Trigger Now...	<p>Immediately triggers all the tasks specified in this trigger.</p> <p>Optionally, you also can select to:</p> <ul style="list-style-type: none"> • Launch the task(s) specified in the trigger with one or more variables. • Launch the task(s) specified in the trigger by a specified date and time. • Launch the task(s) specified in the trigger but place them in Held status; they will not run until they are released. <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note If you click Trigger Now... for an Enabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of the Enabled By user.</p> <p>If you click Trigger Now... for a Disabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of your user name and ID.</p> <p>If you click Trigger Now... for an Enabled or Disabled trigger that has an assigned Execution User, the trigger will launch its task(s) under the context of the assigned Execution User.</p> </div>
Copy	Creates a copy of this trigger, which you are prompted to rename.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this trigger.
Tabs	This section identifies the tabs across the top of the Trigger Details that provide access to additional information about the trigger.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

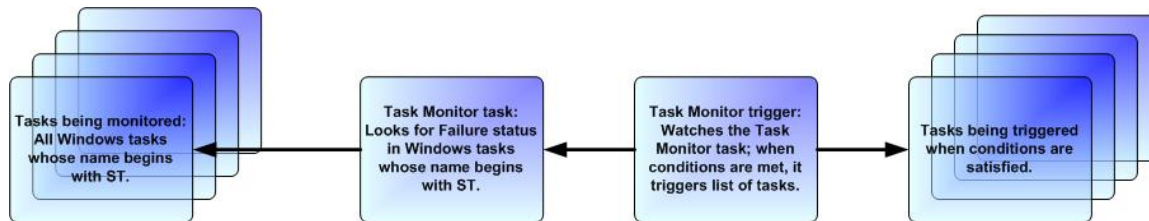
Versions	Stores copies of all previous versions of the current record. See Record Versioning .
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Task Monitor Trigger

- Overview
- Built-In Variables
- Prerequisites
- Creating a Task Monitor Trigger
 - Task Monitor Trigger Details
 - Task Monitor Trigger Details Field Descriptions

Overview

The Task Monitor Trigger allows you to trigger one or more tasks, as specified in a selected Task Monitor task, as illustrated below. For details, see [Launching a Task Monitor Task Using a Task Monitor Trigger](#).



Built-In Variables

The built-in variables outlined below can be used to pass data where appropriate:

- Task Monitor Variables
- Trigger Variables

Prerequisites

Before you can use a Task Monitor Trigger, you need a [Task Monitor task](#), which defines the statuses being monitored for and the tasks being monitored.



Note

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

Creating a Task Monitor Trigger

Step 1 From the Automation Center navigation pane, select **Triggers > Task Monitor Triggers**. The Task Monitor Triggers list displays.

Below the list, Task Monitor Trigger Details for a new Task Monitor trigger displays.

The screenshot shows the 'Task Monitor Triggers' interface. At the top, there are tabs for 'Dashboards' and 'Task Monitor Triggers'. Below this is a list of 5 Task Monitor Triggers. The list has columns for Name, Description, Enabled, Task Monitor, Monitor Status, Updated By, and Updated. Below the list is a 'Task Monitor Trigger Details' window with tabs for 'Task Monitor Trigger', 'Variables', and 'Versions'. The 'General' tab is active, showing fields for Name, Description, Member of Business, Services, Calendar, and Time Zone. The 'Task(s)' field is currently empty, displaying 'No items to show.'

Name	Description	Enabled	Task Monitor	Monitor Status	Updated By	Updated
stonebranch-taskmonitortrigger-01		✘	stonebranch-taskmonitor-01		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-taskmonitortrigger-02		✘	stonebranch-taskmonitor-01		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-taskmonitortrigger-03		✘	stonebranch-taskmonitor-01		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-taskmonitortrigger-04		✘	stonebranch-taskmonitor-01		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-taskmonitortrigger-05		✘	stonebranch-taskmonitor-01		ops.admin	2016-05-24 14:29:09 -0400

Step 2 Enter/select Details for a new Task Monitor trigger, 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 trigger is added to the database, and all buttons and tabs in the Trigger Details are enabled.
Step 4	Enable the trigger(s) as desired.



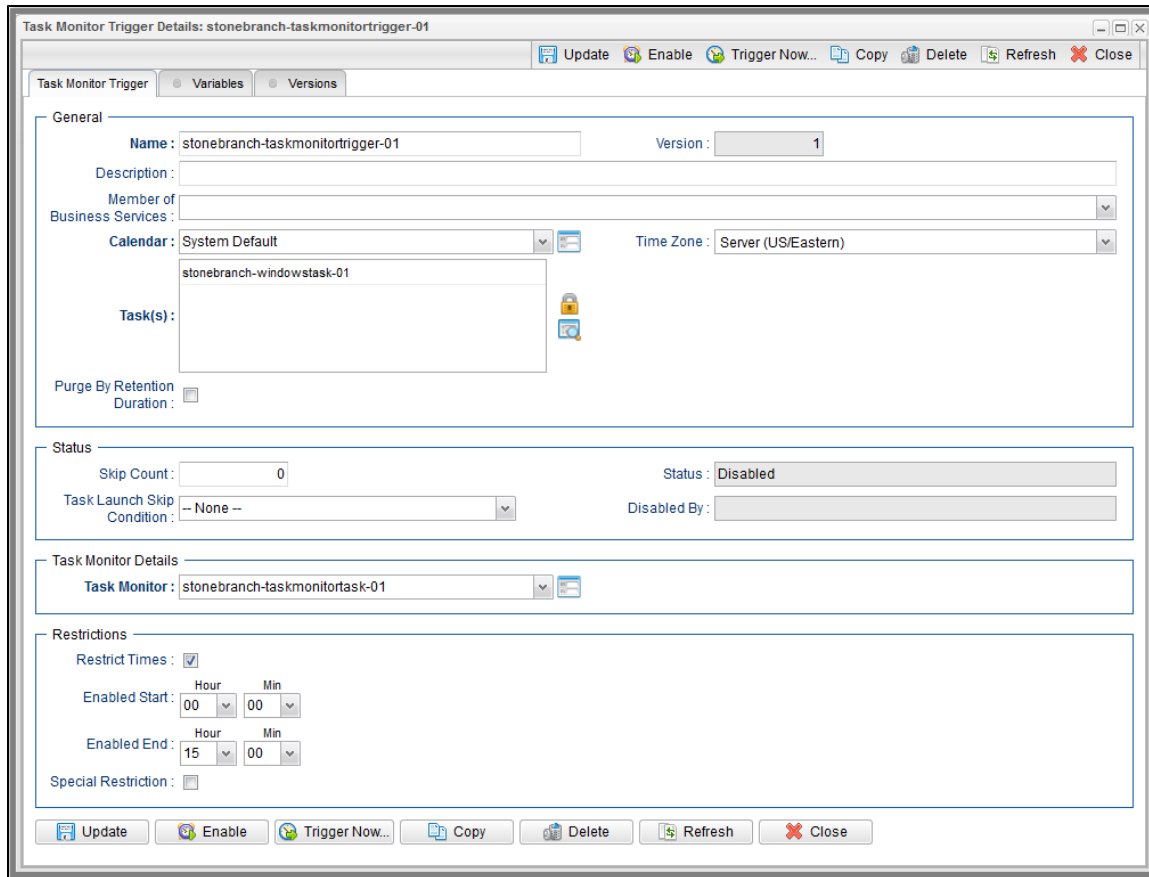
Note

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 Trigger Details

The following Task Monitor Trigger Details is for an existing Task trigger. See the [field descriptions](#), below, for a description of the fields that display in the Task Monitor Trigger Details.



Task Monitor Trigger Details Field Descriptions

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


Field Name	Description
General	This section contains general information about the trigger.
Name	Name used within the Controller to identify this trigger. It can contain a maximum of 255 alphanumeric characters. It is the responsibility of the user to develop a workable naming scheme for triggers.

Version	System-supplied; version number of the current record, which is incremented by the system every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	User-defined; description of this trigger.
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to.
Calendar	Calendar that defines the business days, holidays, and other special days that determine the run dates for the task(s) specified in the trigger. Select a Calendar from the drop-down list of all existing Calendars. To display detailed information about a selected calendar, click the Details icon next to the Calendar field.
Time Zone	User-defined. Allows you to specify the time zone that will be applied to the times specified in the Restrict Times parameters. For example, if you specify an Enabled Start of 23:00, an Enabled End of 24:00, and a time zone of Canada/Central, the trigger is enabled at 11:00 p.m. and disabled at 12:00 a.m., Central Canada time.
Task(s)	Name of the task(s) being triggered when this trigger is satisfied. When selecting tasks from the Details, click on the lock icon to unlock the field and select tasks .
Purge By Retention Duration	Specification for whether triggered task instances can be purged by retention duration .
Exclude Backup	If Purge By Retention Duration is selected; Specification for whether qualifying task instances can be excluded from the backup when being purged by retention duration.
Retention Duration	If Purge By Retention Duration is selected; Minimum retention duration for the selected Retention Duration Unit before triggered task instances can qualify for purge.
Retention Duration Unit	If Purge By Retention Duration is selected; Retention duration unit. Options: <ul style="list-style-type: none"> • Hours • Days
Execution User	Read-only; Execution user that has been selected (via the Assign Execution User action) to override the execution user of task instances being launched by the trigger.
Status	This section contains information about the current status of the trigger.

Skip Count	User-defined; allows you to specify that the Controller should skip the next <i>N</i> times this task is triggered.
Task Launch Skip Condition	User-defined; Controls when launching a task for the trigger will be skipped. Options: <ul style="list-style-type: none"> • – None – Do not skip the task launch. • Active Skip the task launch if a previous instance is still active. • Active By Trigger Skip the task launch if a previous instance launched by the trigger is still active.
Status	User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable / Disable buttons. Only enabled triggers are processed by the Controller.
Enabled By	System-supplied. If Status = Enabled, ID of the user who most recently enabled this trigger.
Disabled By	System-supplied; If Status = Disabled, ID of the user who most recently enabled this trigger. (By default, all new triggers are disabled.)
Task Monitor Details	This section contains assorted detailed information about the trigger.
Task Monitor	Required; Task Monitor task being executed. Enter a task name, select a task from the drop-down list, or click the Task Details icon to create a new task. If a task already is specified in this field, click the Task Details icon to view the Details of that task.
Running Monitor	System-supplied; Name of the currently running task instance of the specified Task Monitor task that was launched by this enabled trigger.
Restrictions	This section specifies any restrictions that apply to the trigger.
Restrict Times	Period during which the trigger is active. Enable this field and specify the start and end times in the Enabled Start and Enabled End fields.
Enabled Start	If Restrict Times is enabled, allows you to specify the start time of the period during which the trigger should be active. Use 24-hour time.
Enabled End	If Restrict Times is enabled, allows you to specify the end time of the period during which the trigger should be active. Use 24-hour time.

<p>Special Restriction</p>	<p>Enable this field in order to specify additional parameters that tell the Controller how to handle exceptions, such as when the trigger is satisfied on a holiday or non-business day. You can specify simple and/or complex restrictions. For example, you can specify a Simple Restriction that disables the trigger if it is satisfied on a holiday identified in the calendar and/or a Complex Restriction that disables the trigger on the last business day of every month.</p>
<p>Simple Restriction</p>	<p>If enabled, allows you to specify an action (see Action field) such as Do Not Trigger on a non-business day or holiday (see Situation field). For example, do not trigger on a non-business day.</p>
<p>Situation</p>	<p>If Simple Restriction is enabled, allows you to select the situation that causes the system to initiate the action specified in the Action field.</p> <p>Options:</p> <ul style="list-style-type: none"> • On Non Business Day • On Holiday
<p>Action</p>	<p>If Special Restriction is enabled, allows you to select an action to take on a non-business day or holiday (see Situation field).</p> <p>Options:</p> <ul style="list-style-type: none"> • Do Not Trigger • Next Day (run on the next day) • Next Business Day (run on the next business day, as defined in the calendar) • Previous Day (run on the previous day) • Previous Business Day (run on the previous business day, as defined in the calendar)
<p>Complex Restriction</p>	<p>If enabled, allows you to specify a set of parameters that determine one or more situations when this trigger should not be satisfied. Used in conjunction with the following fields: Restriction Mode, Restriction Adjective, Restriction Noun, Restriction Qualifier. For example, you may specify that you do not want to satisfy this trigger on the last business day of the year or the first day of each month.</p>
<p>Restriction Mode</p>	<p>If both Simple Restriction and Complex Restriction are enabled, specifies whether you want to use both restriction types (AND) or one or the other (OR).</p> <p>Options:</p> <ul style="list-style-type: none"> • And • Or

Restriction Adjective	<p>If Complex Restriction is enabled, the type of selection.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Last <p>Example: The last business day of the month.</p>
Restriction Noun	<p>If Complex Restriction is enabled, the day you want to select.</p> <p>Options:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day • Business Day • Custom Day <p>Example: The last business day of the month.</p>
Restriction Qualifier	<p>If Complex Restriction is enabled, the period you are selecting from.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom period <p>Example: The last quarter of the year.</p>
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Trigger Details that let you perform various actions.
Save	Saves a new task record in the Controller database.

Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Enable	Activates this trigger and writes your User ID to the Enabled By field.
Disable	Deactivates this trigger.
Trigger Now...	<p>Immediately triggers all the tasks specified in this trigger.</p> <p>Optionally, you also can select to:</p> <ul style="list-style-type: none"> • Launch the task(s) specified in the trigger with one or more variables. • Launch the task(s) specified in the trigger by a specified date and time. • Launch the task(s) specified in the trigger but place them in Held status; they will not run until they are released. <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note If you click Trigger Now... for an Enabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of the Enabled By user.</p> <p>If you click Trigger Now... for a Disabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of your user name and ID.</p> <p>If you click Trigger Now... for an Enabled or Disabled trigger that has an assigned Execution User, the trigger will launch its task(s) under the context of the assigned Execution User.</p> </div>
Copy	Creates a copy of this trigger, which you are prompted to rename.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this trigger.
Tabs	This section identifies the tabs across the top of the Trigger Details that provide access to additional information about the trigger.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

Versions	Stores copies of all previous versions of the current record. See Record Versioning .
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Variable Monitor Trigger

- Overview
- Built-In Variables
- Prerequisites
- Creating a Variable Monitor Trigger
 - Variable Monitor Trigger Details
 - Variable Monitor Trigger Details Field Descriptions

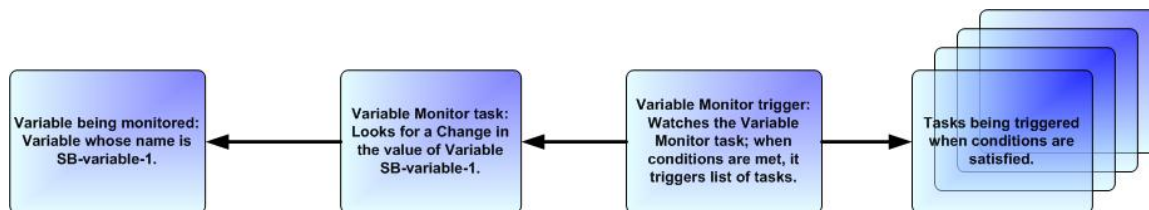
Overview

The Variable Monitor trigger allows you to trigger one or more tasks based on the conditions specified by a selected Variable Monitor task.



Note

You can select only a Variable Monitor task with a Value Monitor Type = **Change**.



Built-In Variables

The built-in variables outlined below can be used to pass data where appropriate:

- Variable Monitor Task Instance/Trigger Variables
- Trigger Variables

Prerequisites

Before you can use a Variable Monitor Trigger, you need a Variable Monitor task, which defines the conditions for the variable being monitored.



Note

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

Creating a Variable Monitor Trigger

Step 1 From the [Automation Center](#) navigation pane, select **Triggers > Variable Monitor Triggers**. The Variable Monitor Triggers list displays.

Below the list, Variable Monitor Trigger Details for a new Variable Monitor trigger displays.

The screenshot shows the 'Variable Monitor Triggers' interface. At the top, there are tabs for 'Dashboards' and 'Variable Monitor Triggers'. Below this is a list of 5 Variable Monitor Triggers. The list has columns for Name, Description, Enabled, Variable Monitor, Monitor Status, Updated By, and Updated. All triggers are currently disabled (indicated by a red 'X' in the Enabled column).

Name	Description	Enabled	Variable Monitor	Monitor Status	Updated By	Updated
stonebranch-variablemonitortrigger-01		✗	stonebranch-variablemonitor-01		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-variablemonitortrigger-02		✗	stonebranch-variablemonitor-02		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-variablemonitortrigger-03		✗	stonebranch-variablemonitor-03		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-variablemonitortrigger-04		✗	stonebranch-variablemonitor-04		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-variablemonitortrigger-05		✗	ecu-variable-monitor		ops.admin	2016-05-24 14:29:09 -0400

Below the list, the 'Variable Monitor Trigger Details' section is open. It has tabs for 'Variable Monitor Trigger', 'Variables', and 'Versions'. The 'General' tab is selected, showing fields for Name, Description, Member of Business, Services, Calendar (set to System Default), and Time Zone (set to Server (US/Eastern)). The Task(s) section is currently empty, displaying 'No items to show.'

Step 2	<p>Enter/select Details for a new Variable Monitor trigger, using the field descriptions below as a guide.</p> <ul style="list-style-type: none"> • Required fields display in boldface. • Default values for fields, if available, display automatically. <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> • 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 trigger is added to the database, and all buttons and tabs in the Trigger Details are enabled.
Step 4	Enable the trigger(s) as desired.



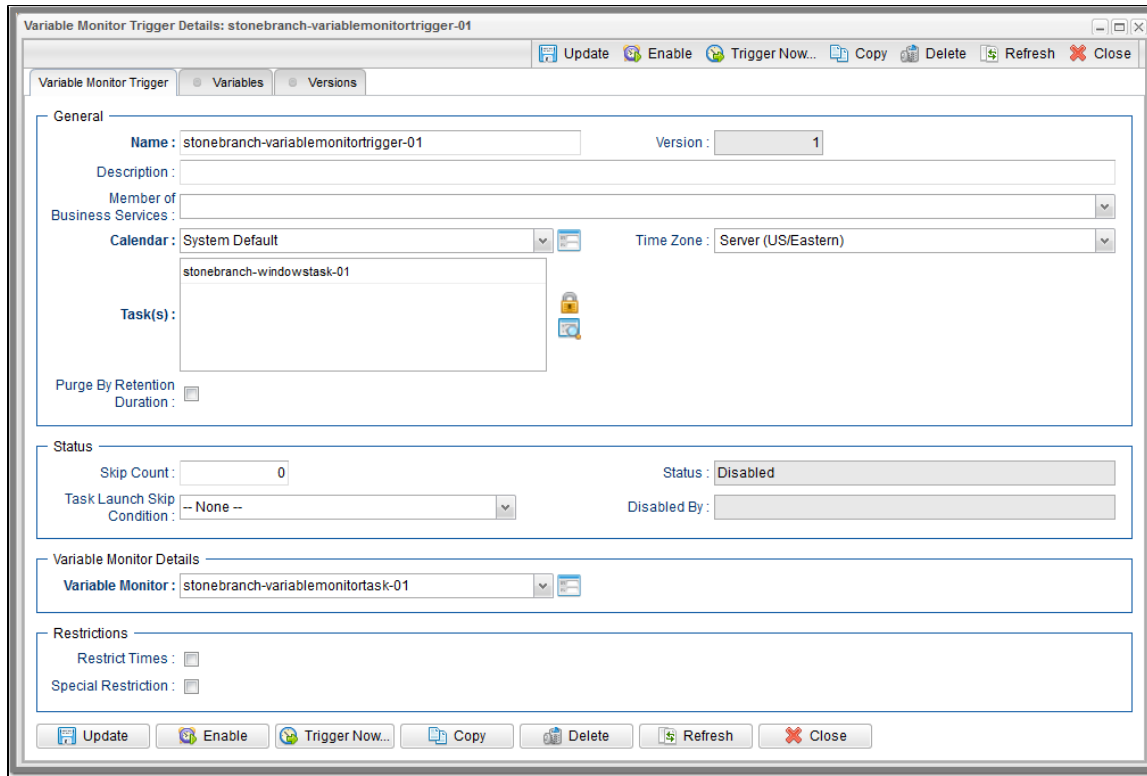
Note

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 Trigger Details

The following Variable Monitor Trigger Details is for an existing Variable Monitor trigger. See the [field descriptions](#), below, for a description of the fields that display in the Variable Monitor Trigger Details.




Variable Monitor Trigger Details Field Descriptions

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


Field Name	Description
General	This section contains general information about the trigger.
Name	Name used within the Controller to identify this trigger. It can contain a maximum of 255 alphanumeric characters. It is the responsibility of the user to develop a workable naming scheme for triggers.
Version	System-supplied; version number of the current record, which is incremented by the system every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	User-defined; description of this trigger.

Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to.
Calendar	Calendar that defines the business days, holidays, and other special days that determine the run dates for the task(s) specified in the trigger. Select a Calendar from the drop-down list of all existing Calendars. To display detailed information about a selected calendar, click the Details icon next to the Calendar field.
Time Zone	User-defined. Allows you to specify the time zone that will be applied to the times specified in the Restrict Times parameters. For example, if you specify an Enabled Start of 23:00, an Enabled End of 24:00, and a time zone of Canada/Central, the trigger is enabled at 11:00 p.m. and disabled at 12:00 a.m., Central Canada time.
Task(s)	Name of the task(s) being triggered when this trigger is satisfied. When selecting tasks from the Details, click on the lock icon to unlock the field and select tasks .
Purge By Retention Duration	Specification for whether triggered task instances can be purged by retention duration .
Exclude Backup	If Purge By Retention Duration is selected; Specification for whether qualifying task instances can be excluded from the backup when being purged by retention duration.
Retention Duration	If Purge By Retention Duration is selected; Minimum retention duration for the selected Retention Duration Unit before triggered task instances can qualify for purge.
Retention Duration Unit	If Purge By Retention Duration is selected; Retention duration unit. Options: <ul style="list-style-type: none"> • Hours • Days
Execution User	Read-only; Execution user that has been selected (via the Assign Execution User action) to override the execution user of task instances being launched by the trigger.
Status	This section contains information about the current status of the trigger.
Skip Count	User-defined; allows you to specify that the Controller should skip the next <i>N</i> times this task is triggered.

<p>Task Launch Skip Condition</p>	<p>User-defined; Controls when launching a task for the trigger will be skipped.</p> <p>Options:</p> <ul style="list-style-type: none"> • – None – Do not skip the task launch. • Active Skip the task launch if a previous instance is still active. • Active By Trigger Skip the task launch if a previous instance launched by the trigger is still active.
<p>Status</p>	<p>User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable / Disable buttons. Only enabled triggers are processed by the Controller.</p>
<p>Enabled By</p>	<p>System-supplied. If Status = Enabled, ID of the user who most recently enabled this trigger.</p>
<p>Disabled By</p>	<p>System-supplied; If Status = Disabled, ID of the user who most recently enabled this trigger. (By default, all new triggers are disabled.)</p>
<p>Variable Monitor Details</p>	<p>This section contains assorted detailed information about the trigger.</p>
<p>Variable Monitor</p>	<p>Required; Variable Monitor task being executed. Enter a task name, select a task from the drop-down list, or click the Task Details icon to create a new task. If a task already is specified in this field, click the Task Details icon to view (and change, as desired) the Details of that task.</p> <div data-bbox="323 951 1919 1057" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note If you click the Details icon to create or update a Variable Monitor, Change is pre-selected for the Variable Monitor Type field and cannot be changed.</p> </div>
<p>Running Monitor</p>	<p>System-supplied; Name of the currently running task instance of the specified Variable Monitor task that was launched by this enabled trigger.</p>
<p>Restrictions</p>	<p>This section specifies any restrictions that apply to the trigger.</p>
<p>Restrict Times</p>	<p>Period during which the trigger is active. Enable this field and specify the start and end times in the Enabled Start and Enabled End fields.</p>
<p>Enabled Start</p>	<p>If Restrict Times is enabled, allows you to specify the start time of the period during which the trigger should be active. Use 24-hour time.</p>

Enabled End	If Restrict Times is enabled, allows you to specify the end time of the period during which the trigger should be active. Use 24-hour time.
Special Restriction	Enable this field in order to specify additional parameters that tell the Controller how to handle exceptions, such as when the trigger is satisfied on a holiday or non-business day. You can specify simple and/or complex restrictions. For example, you can specify a Simple Restriction that disables the trigger if it is satisfied on a holiday identified in the calendar and/or a Complex Restriction that disables the trigger on the last business day of every month.
Simple Restriction	If enabled, allows you to specify an action (see Action field) such as Do Not Trigger on a non-business day or holiday (see Situation field). For example, do not trigger on a non-business day.
Situation	<p>If Simple Restriction is enabled, allows you to select the situation that causes the system to initiate the action specified in the Action field.</p> <p>Options:</p> <ul style="list-style-type: none"> • On Non Business Day • On Holiday
Action	<p>If Special Restriction is enabled, allows you to select an action to take on a non-business day or holiday (see Situation field).</p> <p>Options:</p> <ul style="list-style-type: none"> • Do Not Trigger • Next Day (run on the next day) • Next Business Day (run on the next business day, as defined in the calendar) • Previous Day (run on the previous day) • Previous Business Day (run on the previous business day, as defined in the calendar)
Complex Restriction	If enabled, allows you to specify a set of parameters that determine one or more situations when this trigger should not be satisfied. Used in conjunction with the following fields: Restriction Mode , Restriction Adjective , Restriction Noun , Restriction Qualifier . For example, you may specify that you do not want to satisfy this trigger on the last business day of the year or the first day of each month.
Restriction Mode	<p>If both Simple Restriction and Complex Restriction are enabled, specifies whether you want to use both restriction types (AND) or one or the other (OR).</p> <p>Options:</p> <ul style="list-style-type: none"> • And • Or

<p>Restriction Adjective</p>	<p>If Complex Restriction is enabled, the type of selection.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Last <p>Example: The last business day of the month.</p>
<p>Restriction Noun</p>	<p>If Complex Restriction is enabled, the day you want to select.</p> <p>Options:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day • Business Day • Custom Day <p>Example: The last business day of the month.</p>
<p>Restriction Qualifier</p>	<p>If Complex Restriction is enabled, the period you are selecting from.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom period <p>Example: The last quarter of the year.</p>
<p>Metadata</p>	<p>This section contains Metadata information about this record.</p>
<p>UUID</p>	<p>Universally Unique Identifier of this record.</p>
<p>Updated By</p>	<p>Name of the user that last updated this record.</p>
<p>Updated</p>	<p>Date and time that this record was last updated.</p>
<p>Created By</p>	<p>Name of the user that created this record.</p>
<p>Created</p>	<p>Date and time that this record was created.</p>
<p>Buttons</p>	<p>This section identifies the buttons displayed above and below the Trigger Details that let you perform various actions.</p>
<p>Save</p>	<p>Saves a new task record in the Controller database.</p>

Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Enable	Activates this trigger and writes your User ID to the Enabled By field.
Disable	Deactivates this trigger.
Trigger Now...	<p>Immediately triggers all the tasks specified in this trigger.</p> <p>Optionally, you also can select to:</p> <ul style="list-style-type: none"> • Launch the task(s) specified in the trigger with one or more variables. • Launch the task(s) specified in the trigger by a specified date and time. • Launch the task(s) specified in the trigger but place them in Held status; they will not run until they are released. <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note If you click Trigger Now... for an Enabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of the Enabled By user.</p> <p>If you click Trigger Now... for a Disabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of your user name and ID.</p> <p>If you click Trigger Now... for an Enabled or Disabled trigger that has an assigned Execution User, the trigger will launch its task(s) under the context of the assigned Execution User.</p> </div>
Copy	Creates a copy of this trigger, which you are prompted to rename.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this trigger.
Tabs	This section identifies the tabs across the top of the Trigger Details that provide access to additional information about the trigger.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

Versions	Stores copies of all previous versions of the current record. See Record Versioning .
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Email Monitor Trigger

- [Overview](#)
- [Built-In Variables](#)
- [Prerequisites](#)
- [Creating an Email Monitor Trigger](#)
 - [Email Monitor Trigger Details](#)
 - [Email Monitor Trigger Details Field Descriptions](#)

Overview

The Email Monitor trigger allows you to trigger one or more tasks based on the status of a Mailbox Folder being monitored, as specified by a selected [Email Monitor task](#).

Built-In Variables

The built-in variables outlined below can be used to pass data where appropriate:

- [Task and Task Instance Variables](#)
- [Email Monitor Variables](#).

Prerequisites

Before you can use a Email Monitor Trigger, you need the following:

- A [Windows, Linux/Unix, or z/OS](#) agent, which will execute the Email Monitor task.
- An [Email Monitor task](#), which specifies an Email Mailbox folder to monitor.



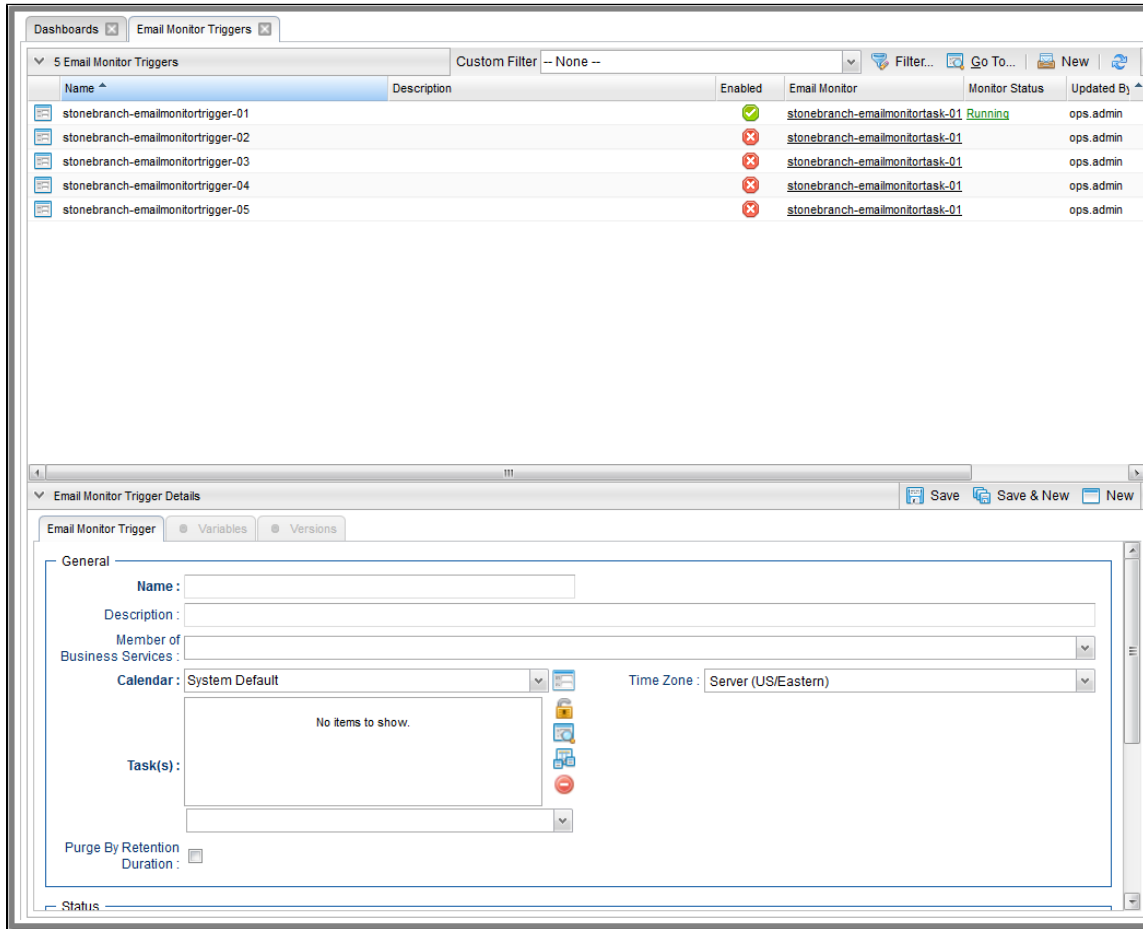
Note

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

Creating an Email Monitor Trigger

Step 1 From the Automation Center navigation pane, select **Triggers > File Monitor Triggers**. The Email Monitor Triggers list displays.

Below the list, Email Monitor Trigger Details for a new Email Monitor trigger displays.



Step 2 Enter/select Details for a new Email Monitor trigger, 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 trigger is added to the database, and all buttons and tabs in the Trigger Details are enabled.
Step 4	Enable the trigger(s) as desired.



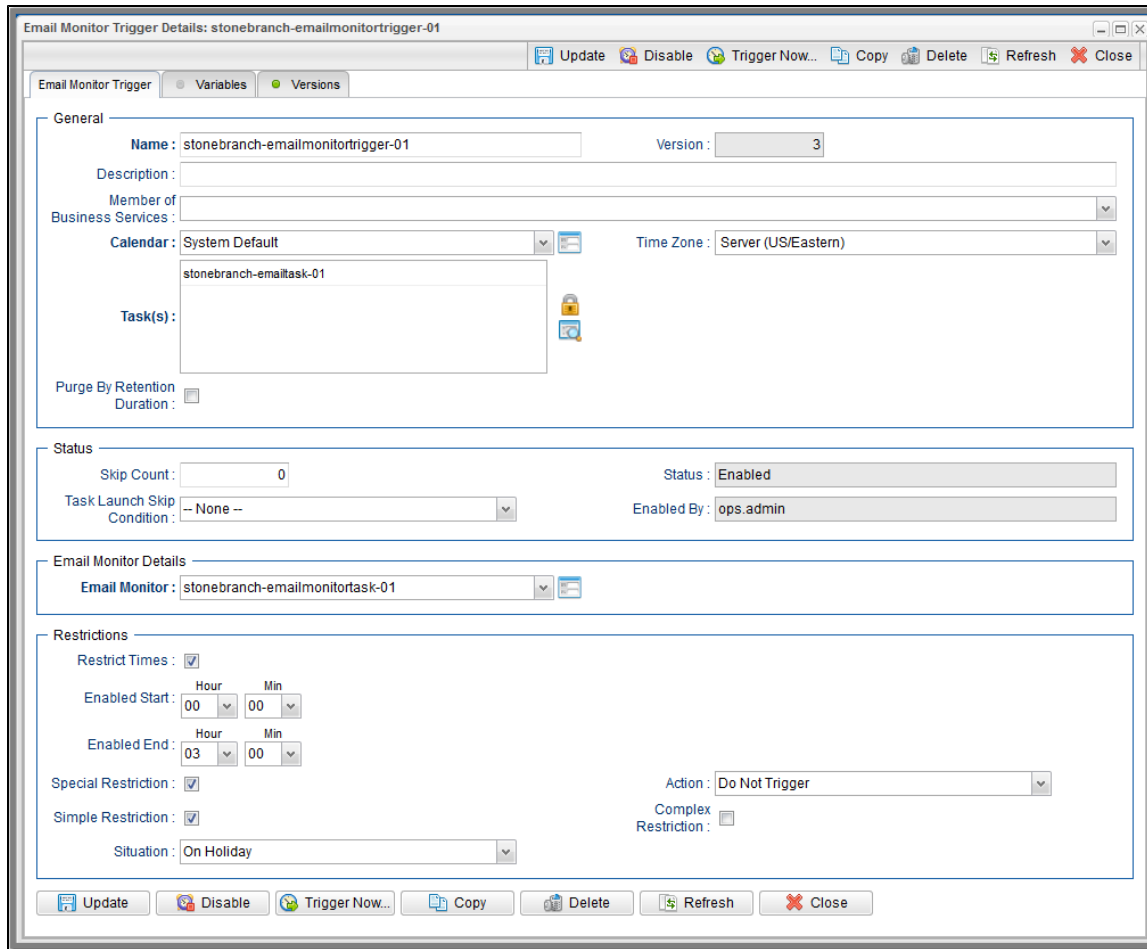
Note

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 Trigger Details

The following Email Monitor Trigger Details is for an existing File Monitor trigger. See the [field descriptions](#), below, for a description of the fields that display in the Email Monitor Trigger Details.



Email Monitor Trigger Details Field Descriptions

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


Field Name	Description
General	This section contains general information about the trigger.
Name	Name used within the Controller to identify this trigger. It can contain a maximum of 255 alphanumeric characters. It is the responsibility of the user to develop a workable naming scheme for triggers.

Version	System-supplied; version number of the current record, which is incremented by the system every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Description	User-defined; description of this trigger.
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to.
Calendar	Calendar that defines the business days, holidays, and other special days that determine the run dates for the task(s) specified in the trigger. Select a Calendar from the drop-down list of all existing Calendars. To display detailed information about a selected calendar, click the Details icon next to the Calendar field.
Time Zone	User-defined. Allows you to specify the time zone that will be applied to the times specified in the Restrict Times parameters. For example, if you specify an Enabled Start of 23:00, an Enabled End of 24:00, and a time zone of Canada/Central, the trigger is enabled at 11:00 p.m. and disabled at 12:00 a.m., Central Canada time.
Task(s)	Name of the task(s) being triggered when this trigger is satisfied. When selecting tasks from the Details, click on the lock icon to unlock the field and select tasks .
Purge By Retention Duration	Specification for whether triggered task instances can be purged by retention duration .
Exclude Backup	If Purge By Retention Duration is selected; Specification for whether qualifying task instances can be excluded from the backup when being purged by retention duration.
Retention Duration	If Purge By Retention Duration is selected; Minimum retention duration for the selected Retention Duration Unit before triggered task instances can qualify for purge.
Retention Duration Unit	If Purge By Retention Duration is selected; Retention duration unit. Options: <ul style="list-style-type: none"> • Hours • Days
Execution User	Read-only; Execution user that has been selected (via the Assign Execution User action) to override the execution user of task instances being launched by the trigger.
Status	This section contains information about the current status of the trigger.

Skip Count	User-defined; allows you to specify that the Controller should skip the next <i>N</i> times this task is triggered.
Task Launch Skip Condition	User-defined; Controls when launching a task for the trigger will be skipped. Options: <ul style="list-style-type: none"> • – None – Do not skip the task launch. • Active Skip the task launch if a previous instance is still active. • Active By Trigger Skip the task launch if a previous instance launched by the trigger is still active.
Status	User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable / Disable buttons. Only enabled triggers are processed by the Controller.
Enabled By	System-supplied. If Status = Enabled, ID of the user who most recently enabled this trigger.
Disabled By	System-supplied; If Status = Disabled, ID of the user who most recently enabled this trigger. (By default, all new triggers are disabled.)
Email Monitor Details	This section contains assorted detailed information about the trigger.
Email Monitor	Required; Email Monitor task being executed. Enter a task name, select a task from the drop-down list, or click the Task Details icon to create a new task. If a task already is specified in this field, click the Task Details icon to view the Details of that task.
Running Monitor	System-supplied; Name of the currently running task instance of the specified Email Monitor task that was launched by this enabled trigger.
Restrictions	This section specifies any restrictions that apply to the trigger.
Restrict Times	Period during which the trigger is active. Enable this field and specify the start and end times in the Enabled Start and Enabled End fields.
Enabled Start	If Restrict Times is enabled, allows you to specify the start time of the period during which the trigger should be active. Use 24-hour time.
Enabled End	If Restrict Times is enabled, allows you to specify the end time of the period during which the trigger should be active. Use 24-hour time.

<p>Special Restriction</p>	<p>Enable this field in order to specify additional parameters that tell the Controller how to handle exceptions, such as when the trigger is satisfied on a holiday or non-business day. You can specify simple and/or complex restrictions. For example, you can specify a Simple Restriction that disables the trigger if it is satisfied on a holiday identified in the calendar and/or a Complex Restriction that disables the trigger on the last business day of every month.</p>
<p>Simple Restriction</p>	<p>If enabled, allows you to specify an action (see Action field) such as Do Not Trigger on a non-business day or holiday (see Situation field). For example, do not trigger on a non-business day.</p>
<p>Situation</p>	<p>If Simple Restriction is enabled, allows you to select the situation that causes the system to initiate the action specified in the Action field.</p> <p>Options:</p> <ul style="list-style-type: none"> • On Non Business Day • On Holiday
<p>Action</p>	<p>If Special Restriction is enabled, allows you to select an action to take on a non-business day or holiday (see Situation field).</p> <p>Options:</p> <ul style="list-style-type: none"> • Do Not Trigger • Next Day (run on the next day) • Next Business Day (run on the next business day, as defined in the calendar) • Previous Day (run on the previous day) • Previous Business Day (run on the previous business day, as defined in the calendar)
<p>Complex Restriction</p>	<p>If enabled, allows you to specify a set of parameters that determine one or more situations when this trigger should not be satisfied. Used in conjunction with the following fields: Restriction Mode, Restriction Adjective, Restriction Noun, Restriction Qualifier. For example, you may specify that you do not want to satisfy this trigger on the last business day of the year or the first day of each month.</p>
<p>Restriction Mode</p>	<p>If both Simple Restriction and Complex Restriction are enabled, specifies whether you want to use both restriction types (AND) or one or the other (OR).</p> <p>Options:</p> <ul style="list-style-type: none"> • And • Or

<p>Restriction Adjective</p>	<p>If Complex Restriction is enabled, the type of selection.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Last <p>Example: The last business day of the month.</p>
<p>Restriction Noun</p>	<p>If Complex Restriction is enabled, the day you want to select.</p> <p>Options:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day • Business Day • Custom Day <p>Example: The last business day of the month.</p>
<p>Restriction Qualifier</p>	<p>If Complex Restriction is enabled, the period you are selecting from.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom period <p>Example: The last quarter of the year.</p>
<p>Metadata</p>	<p>This section contains Metadata information about this record.</p>
<p>UUID</p>	<p>Universally Unique Identifier of this record.</p>
<p>Updated By</p>	<p>Name of the user that last updated this record.</p>
<p>Updated</p>	<p>Date and time that this record was last updated.</p>
<p>Created By</p>	<p>Name of the user that created this record.</p>
<p>Created</p>	<p>Date and time that this record was created.</p>
<p>Buttons</p>	<p>This section identifies the buttons displayed above and below the Trigger Details that let you perform various actions.</p>
<p>Save</p>	<p>Saves a new task record in the Controller database.</p>

Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Enable	Activates this trigger and writes your User ID to the Enabled By field.
Disable	Deactivates this trigger.
Trigger Now...	<p>Immediately triggers all the tasks specified in this trigger.</p> <p>Optionally, you also can select to:</p> <ul style="list-style-type: none"> • Launch the task(s) specified in the trigger with one or more variables. • Launch the task(s) specified in the trigger by a specified date and time. • Launch the task(s) specified in the trigger but place them in Held status; they will not run until they are released. <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note If you click Trigger Now... for an Enabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of the Enabled By user.</p> <p>If you click Trigger Now... for a Disabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of your user name and ID.</p> <p>If you click Trigger Now... for an Enabled or Disabled trigger that has an assigned Execution User, the trigger will launch its task(s) under the context of the assigned Execution User.</p> </div>
Copy	Creates a copy of this trigger, which you are prompted to rename.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this trigger.
Tabs	This section identifies the tabs across the top of the Trigger Details that provide access to additional information about the trigger.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.

Versions	Stores copies of all previous versions of the current record. See Record Versioning .
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Composite Trigger

- Overview
- Built-In Variables
- Monitoring Component Status
- Forecasting
- Creating a Composite Trigger
 - Composite Trigger Details
 - Composite Trigger Details Field Descriptions
- Time Component
 - Time Component Details Field Descriptions
 - Generating a List of Qualifying Times
- File Monitor Component
 - File Monitor Component Details Field Descriptions
- Task Monitor Component
 - Task Monitor Component Details Field Descriptions
- Variable Monitor Component
 - Variable Monitor Component Details Field Descriptions
- Email Monitor Component
 - Email Monitor Component Details Field Descriptions

Overview

The Composite trigger consists of Time, File Monitor, Task Monitor, and Variable Monitor components - which function like [Time](#), [File Monitor](#), [Task Monitor](#), [Variable Monitor](#), and [Email Monitor](#) triggers - that allow you to trigger one or more tasks based on correlated events from those components.

Each Composite trigger can contain the following number of components:

- [Time Component](#) (0 or 1)
- [File Monitor Component](#) (0 or more)
- [Task Monitor Component](#) (0 or more)
- [Variable Monitor Component](#) (0 or more)
- [Email Monitor Component](#) (0 or more)

When you enable a Composite trigger, all components of that trigger are enabled. Each enabled component has its own event queue. When a component fires, an event is enqueued and the component notifies its parent Composite trigger. The Composite trigger will then check the event queues of all of its components and launch the specified task(s) if a correlated set of events is found.

The Composite Trigger Details provides the following fields for component queue specifications:

- [Time Limit](#) and [Time Limit Details](#) specify the length of time that events are maintained in all component queues.
- [Queue Depth](#) specifies the maximum number of events that can be contained in each component queue. If the maximum has been reached but more events are ready to be placed in a queue, the oldest events are discarded.

Built-In Variables

In order to propagate [built-in variables](#) up to a Composite trigger, from the files, tasks, and variables being monitored by its File Monitor, Task Monitor, Variable Monitor, and Email Monitor components, the Component Details provide a **Variable Prefix** field.

- If a **Variable Prefix** is not specified, no built-in variables for that component will be propagated.
- If a **Variable Prefix** is specified, all built-in variables supported by the component type will be propagated using the specified prefix rather than the reserved **ops_** prefix.

Additionally, all components - File Monitor, Task Monitor, Variable Monitor, Email Monitor, and Time - support the built-in variable `<prefix>trigger_component_event_time` that resolves to the time when the component fired.

Monitoring Component Status

You can monitor the following statuses of each enabled component in its component Details (available via the Components tab of the Composite trigger).

Component	Status
Time	<ul style="list-style-type: none"> • Status • Next Scheduled Time
File Monitor	<ul style="list-style-type: none"> • Status • Running Monitor • Monitor Status
Task Monitor	<ul style="list-style-type: none"> • Status • Running Monitor • Monitor Status
Variable Monitor	<ul style="list-style-type: none"> • Status • Running Monitor • Monitor Status
Email Monitor	<ul style="list-style-type: none"> • Status • Running Monitor • Monitor Status

Forecasting

Forecasting is not supported for Composite triggers.

Creating a Composite Trigger

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

Below the list, Composite Trigger Details for a new Composite trigger displays.

The screenshot shows the 'Composite Triggers' list and the 'Composite Trigger Details' form. The list contains five triggers, all disabled. The details form is for a new trigger and includes fields for Name, Description, Member of Business, Calendar, Time Zone, and Task(s).

Name	Description	Enabled	Time Limit	Time Limit Unit	Queue Depth	Updated By	Updated
stonebranch-compositetrigger-01		✘	5	Days	100	ops.admin	2016-12-15 14:35:13 -0500
stonebranch-compositetrigger-02		✘		Minutes	100	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-compositetrigger-03		✘		Minutes	100	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-compositetrigger-04		✘		Minutes	100	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-compositetrigger-05		✘		Minutes	100	ops.admin	2016-05-24 14:29:09 -0400

Composite Trigger Details

Composite Trigger | Components | Variables | Versions

General

Name :

Description :

Member of Business :

Calendar : System Default

Time Zone : Server (US/Eastern)

Task(s) :

No items to show.

Step 2	<p>Enter/select Details for a new Composite trigger, using the field descriptions below as a guide.</p> <ul style="list-style-type: none"> • Required fields display in boldface. • Default values for fields, if available, display automatically. <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> • 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 trigger is added to the database, and all buttons and tabs in the Trigger Details are enabled.
Step 4	Enable the trigger(s) as desired.

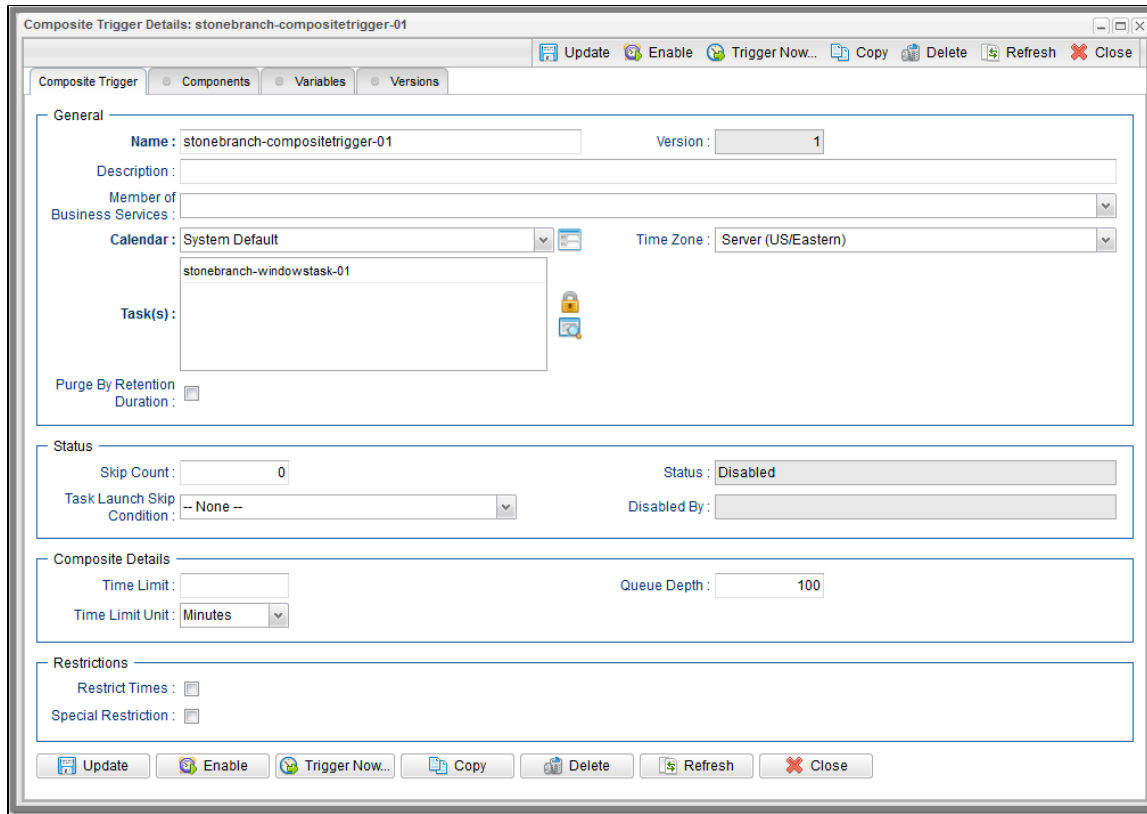
**Note**

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](#)).

Composite Trigger Details

The following Composite Trigger Details is for an existing Composite trigger. See the [field descriptions](#), below, for a description of the fields that display in the Composite Trigger Details.



Composite Trigger Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Composite Trigger Details.


Field Name	Description
General	This section contains general information about the trigger.
Name	Name used within the Controller to identify this trigger. It can contain a maximum of 255 alphanumeric characters. It is the responsibility of the user to develop a workable naming scheme for triggers.
Version	System-supplied; version number of the current record, which is incremented by the system every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .

Description	User-defined; description of this trigger.
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to.
Calendar	<p>Calendar that defines the business days, holidays, and other special days that determine the run dates for the task(s) specified in the trigger.</p> <p>Select a Calendar from the drop-down list of all existing Calendars. To display detailed information about a selected calendar, click the Details icon next to the Calendar field.</p>
Time Zone	User-defined; allows you to specify the time zone that will be applied to the time(s) specified in the trigger. For example, if you specify 23:00 and a time zone of Canada/Central, the task will run at 11:00 p.m. Central Canada time.
Task(s)	Name of the task(s) being triggered when this trigger is satisfied. When selecting tasks from the Details, click on the lock icon to unlock the field and select tasks .
Purge By Retention Duration	Specification for whether triggered task instances can be purged by retention duration .
Exclude Backup	If Purge By Retention Duration is selected; Specification for whether qualifying task instances can be excluded from the backup when being purged by retention duration.
Retention Duration	If Purge By Retention Duration is selected; Minimum retention duration for the selected Retention Duration Unit before triggered task instances can qualify for purge.
Retention Duration Unit	<p>If Purge By Retention Duration is selected; Retention duration unit.</p> <p>Options:</p> <ul style="list-style-type: none"> • Hours • Days
Execution User	Read-only; Execution user that has been selected (via the Assign Execution User action) to override the execution user of task instances being launched by the trigger.
Status	This section contains information about the current status of the component.
Status	User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable / Disable buttons. Only enabled triggers are processed by the Controller.

Skip Count	User-defined; allows you to specify that the Controller should skip the next <i>N</i> times this task is triggered.
Enabled By	System-supplied. If Status = Enabled, ID of the user who most recently enabled this trigger.
Disabled By	System-supplied; If Status = Disabled, ID of the user who most recently enabled this trigger. (By default, all new triggers are disabled.)
Task Launch Skip Condition	<p>User-defined; Controls when launching a task for the trigger will be skipped.</p> <p>Options:</p> <ul style="list-style-type: none"> • – None – Do not skip the task launch. • Active Skip the task launch if a previous instance is still active. • Active By Trigger Skip the task launch if a previous instance launched by the trigger is still active.
Composite Details	This section contains assorted detailed information about the trigger.
Time Limit	Amount of time (in Time Limit Units) that component events will remain in their queue before being removed.
Time Limit Units	<p>Unit of time specified in the Time Limit field.</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours • Days
Queue Depth	<p>Number of events that are maintained in the queue for each component at any time. To maintain the Queue Depth, the Controller discards the oldest events.</p> <p>Valid values are 1 to 100 (default is 100). If Queue Depth = 1, only the most recent event from each component can be matched.</p>
Restrictions	This section specifies any restrictions that apply to the trigger.
Restrict Times	Period during which the trigger is active. Enable this field and specify the start and end times in the Enabled Start and Enabled End fields.
Enabled Start	If Restrict Times is enabled, allows you to specify the start time of the period during which the trigger should be active. Use 24-hour time.
Enabled End	If Restrict Times is enabled, allows you to specify the end time of the period during which the trigger should be active. Use 24-hour time.

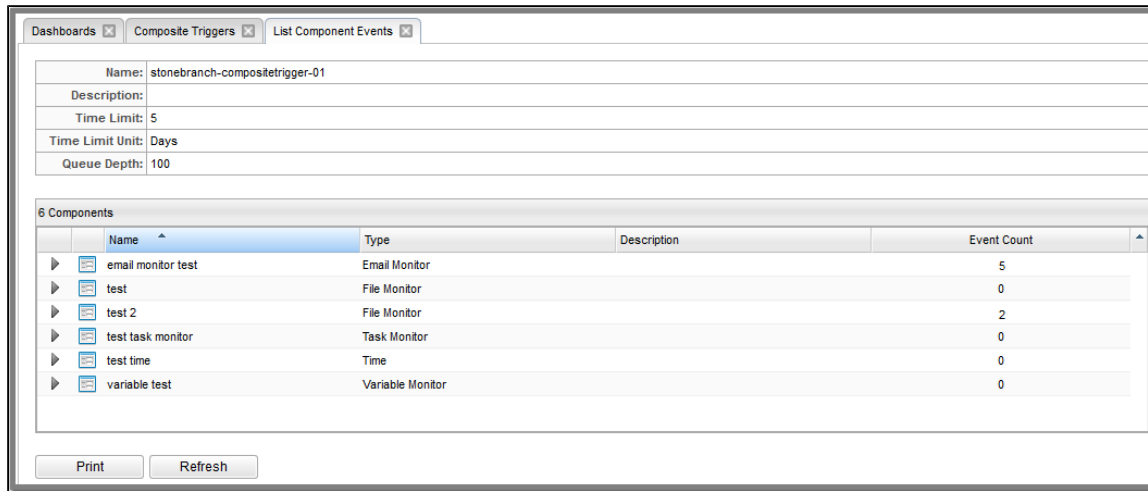
<p>Special Restriction</p>	<p>Enable this field in order to specify additional parameters that tell the Controller how to handle exceptions, such as when the trigger is satisfied on a holiday or non-business day. You can specify simple and/or complex restrictions. For example, you can specify a Simple Restriction that disables the trigger if it is satisfied on a holiday identified in the calendar and/or a Complex Restriction that disables the trigger on the last business day of every month.</p>
<p>Action</p>	<p>If Special Restriction is enabled, allows you to select an action to take on a non-business day or holiday (see Situation field).</p> <p>Options:</p> <ul style="list-style-type: none"> • Do Not Trigger • Next Day (run on the next day) • Next Business Day (run on the next business day, as defined in the calendar) • Previous Day (run on the previous day) • Previous Business Day (run on the previous business day, as defined in the calendar)
<p>Simple Restriction</p>	<p>If enabled, allows you to specify an action (see Action field) such as Do Not Trigger on a non-business day or holiday (see Situation field). For example, do not trigger on a non-business day.</p>
<p>Situation</p>	<p>If Simple Restriction is enabled, allows you to select the situation that causes the system to initiate the action specified in the Action field.</p> <p>Options:</p> <ul style="list-style-type: none"> • On Non Business Day • On Holiday
<p>Complex Restriction</p>	<p>If enabled, allows you to specify a set of parameters that determine one or more situations when this trigger should not be satisfied. Used in conjunction with the following fields: Restriction Mode, Restriction Adjective, Restriction Noun, Restriction Qualifier. For example, you may specify that you do not want to satisfy this trigger on the last business day of the year or the first day of each month.</p>
<p>Restriction Mode</p>	<p>If both Simple Restriction and Complex Restriction are enabled, specifies whether you want to use both restriction types (AND) or one or the other (OR).</p> <p>Options:</p> <ul style="list-style-type: none"> • And • Or

<p>Restriction Adjective</p>	<p>If Complex Restriction is enabled, the type of selection.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Last <p>Example: The last business day of the month.</p>
<p>Restriction Noun</p>	<p>If Complex Restriction is enabled, the day you want to select.</p> <p>Options:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day • Business Day • Custom Day <p>Example: The last business day of the month.</p>
<p>Restriction Qualifier</p>	<p>If Complex Restriction is enabled, the period you are selecting from.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom period <p>Example: The last quarter of the year.</p>
<p>Metadata</p>	<p>This section contains Metadata information about this record.</p>
<p>UUID</p>	<p>Universally Unique Identifier of this record.</p>
<p>Updated By</p>	<p>Name of the user that last updated this record.</p>
<p>Updated</p>	<p>Date and time that this record was last updated.</p>
<p>Created By</p>	<p>Name of the user that created this record.</p>
<p>Created</p>	<p>Date and time that this record was created.</p>
<p>Buttons</p>	<p>This section identifies the buttons displayed above and below the Trigger Details that let you perform various actions.</p>
<p>Save</p>	<p>Saves a new task record in the Controller database.</p>

Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Enable	Activates this trigger and writes your User ID to the Enabled By field.
Disable	Deactivates this trigger.
Trigger Now...	<p>Immediately triggers all the tasks specified in this trigger.</p> <p>Optionally, you also can select to:</p> <ul style="list-style-type: none"> • Launch the task(s) specified in the trigger with one or more variables. • Launch the task(s) specified in the trigger by a specified date and time. • Launch the task(s) specified in the trigger but place them in Held status; they will not run until they are released. <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note If you click Trigger Now... for an Enabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of the Enabled By user.</p> <p>If you click Trigger Now... for a Disabled trigger that does not have an assigned Execution User, the trigger will launch its task(s) under the context of your user name and ID.</p> <p>If you click Trigger Now... for an Enabled or Disabled trigger that has an assigned Execution User, the trigger will launch its task(s) under the context of the assigned Execution User.</p> </div>

List Component Events

For enabled triggers; Displays a new tab that lists all components of the Composite trigger and maintains a dynamic count of all events that have occurred for each component.



Copy

Creates a copy of this trigger, which you are prompted to rename.

Delete

Deletes the current record.

Refresh

Refreshes any dynamic data displayed in the Details.

Close

For pop-up view only; closes the pop-up view of this trigger.

Tabs

This section identifies the tabs across the top of the Trigger Details that provide access to additional information about the trigger.

Components

Allows you to define the following components:

- Single Time Trigger component
- One or more Task Monitor trigger components
- One or more File Monitor trigger components
- One or more Variable Monitor trigger components
- One or more Email Monitor trigger components

Variables

Lists all [user-defined variables](#) associated with this record; that is, variables that have been defined for this specific record.

Versions


Stores copies of all previous versions of the current record. See [Record Versioning](#).



Time Component

Time Component Details Field Descriptions

The following table describes the fields and buttons that display in the Time Component Details.


Field Name	Description
General	This section contains general information about the component.

Name	Name used within the Controller to identify this component. It can contain a maximum of 255 alphanumeric characters.
Description	User-defined; Description of this component.
Built-In Variable Prefix	User-specified prefix that enables built-in variables to be propagated up to the Composite trigger.
Status	This section contains information about the current status of the component.
Event Match Type	<p>Controls whether events from the Time component will be used for a single match or multiple matches at the Composite trigger level.</p> <p>Options:</p> <ul style="list-style-type: none"> • Single • Multiple <div style="background-color: #ffffcc; padding: 5px; margin-top: 10px;"> <p> Note You can select Multiple only if a Time Limit is specified in the Composite Trigger Details.</p> </div>
Status	User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable / Disable buttons. Only enabled triggers are processed by the Controller.
Next Scheduled Time	System-supplied; for time-based triggers. If Status = Enabled, the next date and time this trigger will be satisfied. See Displaying Trigger Forecast Information .
Time Details	This section contains assorted detailed information about the component.
Time Style	<p>Specifies whether this trigger is for a specific time or a series of times.</p> <p>Options:</p> <ul style="list-style-type: none"> • Time - Triggers the task at a specific time. <ul style="list-style-type: none"> • Required field: Time. • Time Interval - Triggers the task at specific intervals of times. <ul style="list-style-type: none"> • Required fields: Time Interval, Time Interval Units. • Optional fields: Enable Offset, Restrict Times.
Time	Required if Time Style = Time; time of the trigger in hours and minutes, using 24-hour time. For example, 01:45 means trigger the task at 1:45 a.m.; 13:45 means trigger the task at 1:45 p.m. (See also Daylight Saving Time .)

<p>Time Interval</p>	<p>Required if Time Style = Time Interval; number of Time Interval Units. For example, for a Time Interval of every three hours, specify 3 in this field and select Hours in the Time Interval Units field.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note See Scheduling a Time Interval, below, for information on using a Time Trigger to schedule a time interval for triggering a task.</p> </div>
<p>Time Interval Units</p>	<p>Required if Time Style = Time Interval; Type of time interval. Used in conjunction with the Time Interval field. For example, for a Time Interval of every three hours, specify 3 in the Time Interval field and select Hours in this field.</p> <p>Options:</p> <ul style="list-style-type: none"> • Seconds • Minutes • Hours
<p>Enable Offset</p>	<p>If Time Style = Time Interval, allows you to define (in the Initial Time Offset field) a starting time, in minutes offset from the hour, for the trigger to run.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note Enable Offset and Restrict Times are mutually exclusive.</p> </div>
<p>Initial Time Offset (hh:mm)</p>	<p>If Enable Offset is selected, allows you to define a starting time, in minutes offset from the hour.</p> <p>The default value (*) lets you select a starting hour (0 to 23) other than the next hour.</p> <p>For example:</p> <ul style="list-style-type: none"> • If you want the task to run every 30 minutes at the :15 and :45 minute mark, you would select Time Interval = 30, Time Interval Units = minutes, and Initial Time Offset = *:15. • If you want the task to run every 30 minutes at the :15 and :45 minute mark starting at 6:15 p.m., you would select Time Interval = 30, Time Interval Units = minutes, and Initial Time Offset = 18:15.
<p>Day Details</p>	<p>This section contains assorted detailed information about the trigger day.</p>

Day Style	<p>Allows you to indicate when this trigger will be run:</p> <p>Options:</p> <ul style="list-style-type: none"> • Simple - Trigger is run every day, on business days, or on one or more specific days, depending on what you select in the Daily, Business Days, and Specific Day(s) fields (see below). • Complex - Trigger is run on one or more days selected by a formula specified using the Date Adjective, Date Noun, and Date Qualifier fields (see below). • Every - Trigger is run at an interval of a specified number of days (see Day Interval, below) starting on a specified date (see Interval Start, below).
Daily	<p>If Day Style = Simple, allows you to specify that the trigger is active every day of the week.</p>
Business Days	<p>If Day Style = Simple, allows you to specify that the trigger is active on the business days specified in the calendar selected in the Calendar field.</p>
Specific Day(s)	<p>If Day Style = Simple, allows you to specify one or more specific days of the week that the trigger is active in the calendar selected in the Calendar field.</p>
Date Adjective	<p>If Day Style = Complex, allows you to specify which in a series of days you want to select. Used in conjunction with the Date Noun and the Date Qualifier fields.</p> <p>For example, to specify "the 15th business day of the month," select Date Adjective = Nth, Date Noun = Business Day, Date Qualifier = Month, and Nth Amount = 15.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Nth • Last
Nth Amount	<p>If Date Adjective = Nth, allows you to specify the value of N.</p>
Date Noun	<p>If Day Style = Complex, allows you to specify the type of day you want to select. Used in conjunction with the Date Adjective and the Date Qualifier fields.</p> <p>For example, to specify "the 15th business day of the month," select Date Adjective = Nth, Date Noun = Business Day, Date Qualifier = Month, and Nth Amount = 15.</p> <p>This drop-down menu is populated as follows:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day = any day • Business Day = The business days specified in the calendar selected in the Calendar field. • Any Custom Days specified in the calendar selected in the Calendar field.

<p>Date Qualifier</p>	<p>If Day Style = Complex, allows you to specify the period for your selection formula. Used in conjunction with the Date Noun and Date Adjective fields.</p> <p>For example, to specify "the 15th business day of the month," select Date Adjective = Nth, Date Noun = Business Day, Date Qualifier = Month, and Nth Amount = 15.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom Period (see Creating Custom Days)
<p>Date Adjustment</p>	<p>If Day Style = Complex, allows you to adjust your date setting by a less or plus number of Days or Business Days.</p> <p>For example, to specify the 2nd to last day of the month (last day of the month less one day), select Date Adjective = Last, Date Noun = Day, Date Qualifier = Month, Data Adjustment = Less, Adjustment Amount = 1, and Adjustment Type = Day.</p> <p>Options:</p> <ul style="list-style-type: none"> • None • Less • Plus <p>Default is None.</p>
<p>Adjustment Amount</p>	<p>Required if Day Adjustment = Less or Plus; Allows you to specify the number of Days or Business Days to adjust your date setting. Maximum is 366. Default is 1.</p>
<p>Adjustment Type</p>	<p>If Day Adjustment = Less or Plus, allows you to specify the type of day by which to adjust your date setting.</p> <p>Options:</p> <ul style="list-style-type: none"> • Day • Business Day
<p>Day Interval</p>	<p>If Day Style = Every, allows you to specify the interval (in days) at which this trigger will run.</p>
<p>Interval Start</p>	<p>If Day Style = Every, allows you to specify the first day of the interval on which this trigger will run.</p>
<p>Restrictions</p>	<p>This section specifies any restrictions that apply to the component.</p>

<p>Restrict Times</p>	<p>If Time Style = Time Interval; Period during which the trigger is active. Enable this field and specify the start and end times in the Enabled Start and Enabled End fields.</p> <p>Restrict Times does not affect the start time or end time of the trigger Time Interval; it only specifies the time frame during which the trigger is active. (For additional information, see Restrict Times on the Time Trigger page.)</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note Restrict Times and Enable Offset are mutually exclusive.</p> </div>
<p>Enabled Start</p>	<p>If Restrict Times is enabled, allows you to specify the start time of the period during which the trigger should be active. Use 24-hour time.</p>
<p>Enabled End</p>	<p>If Restrict Times is enabled, allows you to specify the end time of the period during which the trigger should be active. Use 24-hour time.</p>
<p>Adjust Interval To Enabled Start</p>	<p>If Restrict Times is enabled; Specification for whether to always begin at the Enabled Start, regardless of the time interval, or to begin based on the actual interval. If Adjust Interval To Enabled Start is not selected, the start time and end time specify only the time frame/window during which the trigger is active; they do not modify the actual time interval (see Restrict Times).</p>
<p>Special Restriction</p>	<p>Enable this field in order to specify additional parameters that tell the Controller how to handle exceptions, such as when the trigger is satisfied on a holiday or non-business day. You can specify simple and/or complex restrictions. For example, you can specify a Simple Restriction that disables the trigger if it is satisfied on a holiday identified in the calendar and/or a Complex Restriction that disables the trigger on the last business day of every month.</p>
<p>Simple Restriction</p>	<p>If enabled, allows you to specify an action (see Action field) such as Do Not Trigger on a non-business day or holiday (see Situation field). For example, do not trigger on a non-business day.</p>
<p>Situation</p>	<p>If Simple Restriction is enabled, allows you to select the situation that causes the system to initiate the action specified in the Action field.</p> <p>Options:</p> <ul style="list-style-type: none"> • On Non Business Day • On Holiday

<p>Action</p>	<p>If Special Restriction is enabled, allows you to select an action to take on a non-business day or holiday (see Situation field).</p> <p>Options:</p> <ul style="list-style-type: none"> • Do Not Trigger • Next Day (run on the next day) • Next Business Day (run on the next business day, as defined in the calendar) • Previous Day (run on the previous day) • Previous Business Day (run on the previous business day, as defined in the calendar)
<p>Complex Restriction</p>	<p>If enabled, allows you to specify a set of parameters that determine one or more situations when this trigger should not be satisfied. Used in conjunction with the following fields: Restriction Mode, Restriction Adjective, Restriction Noun, Restriction Qualifier. For example, you may specify that you do not want to satisfy this trigger on the last business day of the year or the first day of each month.</p>
<p>Restriction Mode</p>	<p>If both Simple Restriction and Complex Restriction are enabled, specifies whether you want to use both restriction types (AND) or one or the other (OR).</p> <p>Options:</p> <ul style="list-style-type: none"> • And • Or
<p>Restriction Adjective</p>	<p>If Complex Restriction is enabled, the type of selection.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Last <p>Example: The last business day of the month.</p>
<p>Restriction Noun</p>	<p>If Complex Restriction is enabled, the day you want to select.</p> <p>Options:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day • Business Day • Custom Day <p>Example: The last business day of the month.</p>

Restriction Qualifier	<p>If Complex Restriction is enabled, the period you are selecting from.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom period <p>Example: The last quarter of the year.</p>
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Component Details that let you perform various actions.
Save	Saves a new record in the Controller database.
Save & View	Saves a new record in the Controller database and continues to display that record.
Update	Saves updates to the record.
List Qualifying Times	Lets you generate a list of future dates and times that the trigger will trigger the specified task (see Generating a List of Qualifying Times , below).
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this component.

Generating a List of Qualifying Times

The Controller allows you to generate a list of future dates and times that a trigger will trigger the specified task.

Step 1 Click the List Qualifying Times button in the Time Trigger Details. The List Qualifying Times Input dialog displays.

The screenshot shows a dialog box titled "List Qualifying Times...". Inside the dialog, there are two main input fields. The first is labeled "Number of Dates/Times :" and has a text input field containing the number "30". The second is labeled "Start Date :" and consists of three dropdown menus: the first shows "2017", the second shows "Aug", and the third shows "10". To the right of the date dropdowns is a small calendar icon. At the bottom center of the dialog is a "Submit" button.

Step 2 Select a Number of Dates/Times (1 - 1000) that you want to list. The default is 30.

Step 3 Select a Start Date from when you want the list to begin.

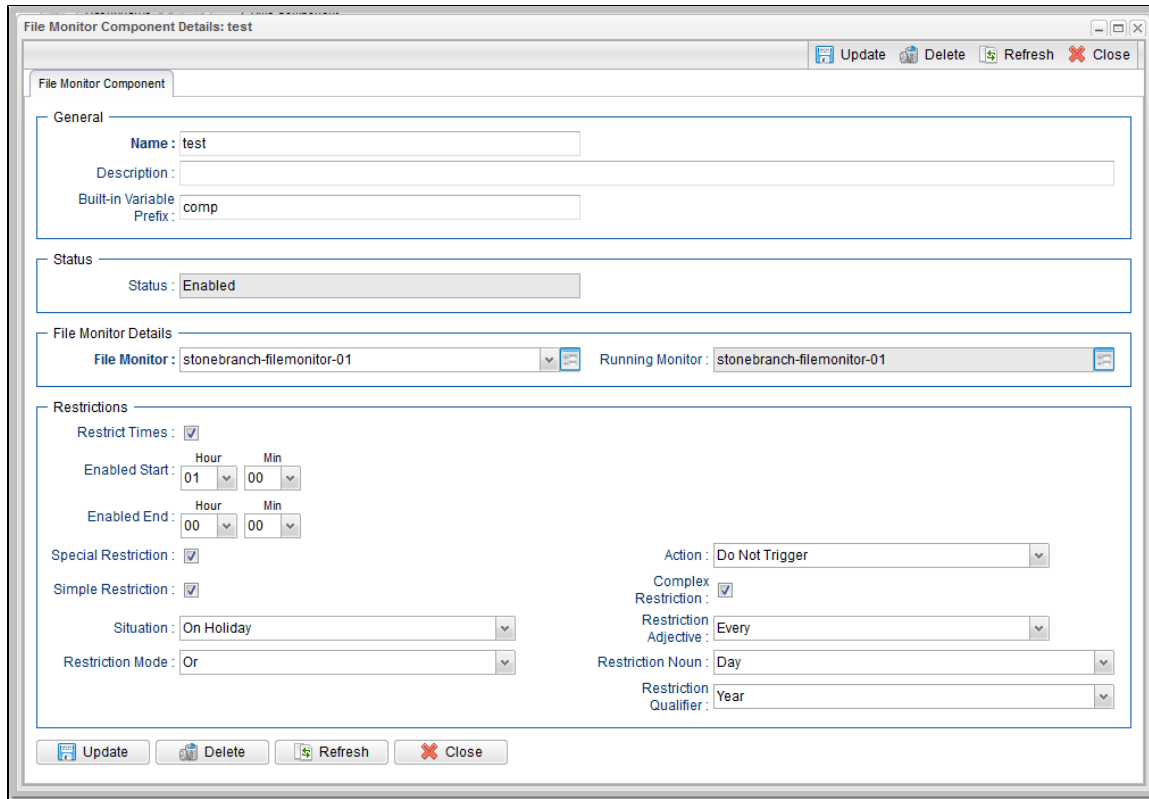
Step 4 Click the **Submit** button to generate the list. For example:

stonebranch-timetrigger-01

Listing From: 2017-08-10 10:47:01 -0500

User TimeZone: America/New_York	Trigger Timezone: SystemV/EST5
Thursday, August 10, 2017 11:48:01 EDT -0400	Thursday, August 10, 2017 10:48:01 EST -0500
Thursday, August 10, 2017 11:49:01 EDT -0400	Thursday, August 10, 2017 10:49:01 EST -0500
Thursday, August 10, 2017 11:50:01 EDT -0400	Thursday, August 10, 2017 10:50:01 EST -0500
Thursday, August 10, 2017 11:51:01 EDT -0400	Thursday, August 10, 2017 10:51:01 EST -0500
Thursday, August 10, 2017 11:52:01 EDT -0400	Thursday, August 10, 2017 10:52:01 EST -0500
Thursday, August 10, 2017 11:53:01 EDT -0400	Thursday, August 10, 2017 10:53:01 EST -0500
Thursday, August 10, 2017 11:54:01 EDT -0400	Thursday, August 10, 2017 10:54:01 EST -0500
Thursday, August 10, 2017 11:55:01 EDT -0400	Thursday, August 10, 2017 10:55:01 EST -0500
Thursday, August 10, 2017 11:56:01 EDT -0400	Thursday, August 10, 2017 10:56:01 EST -0500
Thursday, August 10, 2017 11:57:01 EDT -0400	Thursday, August 10, 2017 10:57:01 EST -0500
Thursday, August 10, 2017 11:58:01 EDT -0400	Thursday, August 10, 2017 10:58:01 EST -0500
Thursday, August 10, 2017 11:59:01 EDT -0400	Thursday, August 10, 2017 10:59:01 EST -0500
Thursday, August 10, 2017 12:00:01 EDT -0400	Thursday, August 10, 2017 11:00:01 EST -0500
Thursday, August 10, 2017 12:01:01 EDT -0400	Thursday, August 10, 2017 11:01:01 EST -0500
Thursday, August 10, 2017 12:02:01 EDT -0400	Thursday, August 10, 2017 11:02:01 EST -0500
Thursday, August 10, 2017 12:03:01 EDT -0400	Thursday, August 10, 2017 11:03:01 EST -0500
Thursday, August 10, 2017 12:04:01 EDT -0400	Thursday, August 10, 2017 11:04:01 EST -0500
Thursday, August 10, 2017 12:05:01 EDT -0400	Thursday, August 10, 2017 11:05:01 EST -0500
Thursday, August 10, 2017 12:06:01 EDT -0400	Thursday, August 10, 2017 11:06:01 EST -0500
Thursday, August 10, 2017 12:07:01 EDT -0400	Thursday, August 10, 2017 11:07:01 EST -0500
Thursday, August 10, 2017 12:08:01 EDT -0400	Thursday, August 10, 2017 11:08:01 EST -0500
Thursday, August 10, 2017 12:09:01 EDT -0400	Thursday, August 10, 2017 11:09:01 EST -0500
Thursday, August 10, 2017 12:10:01 EDT -0400	Thursday, August 10, 2017 11:10:01 EST -0500

File Monitor Component



File Monitor Component Details Field Descriptions

The following table describes the fields and buttons that display in the File Monitor Component Details.

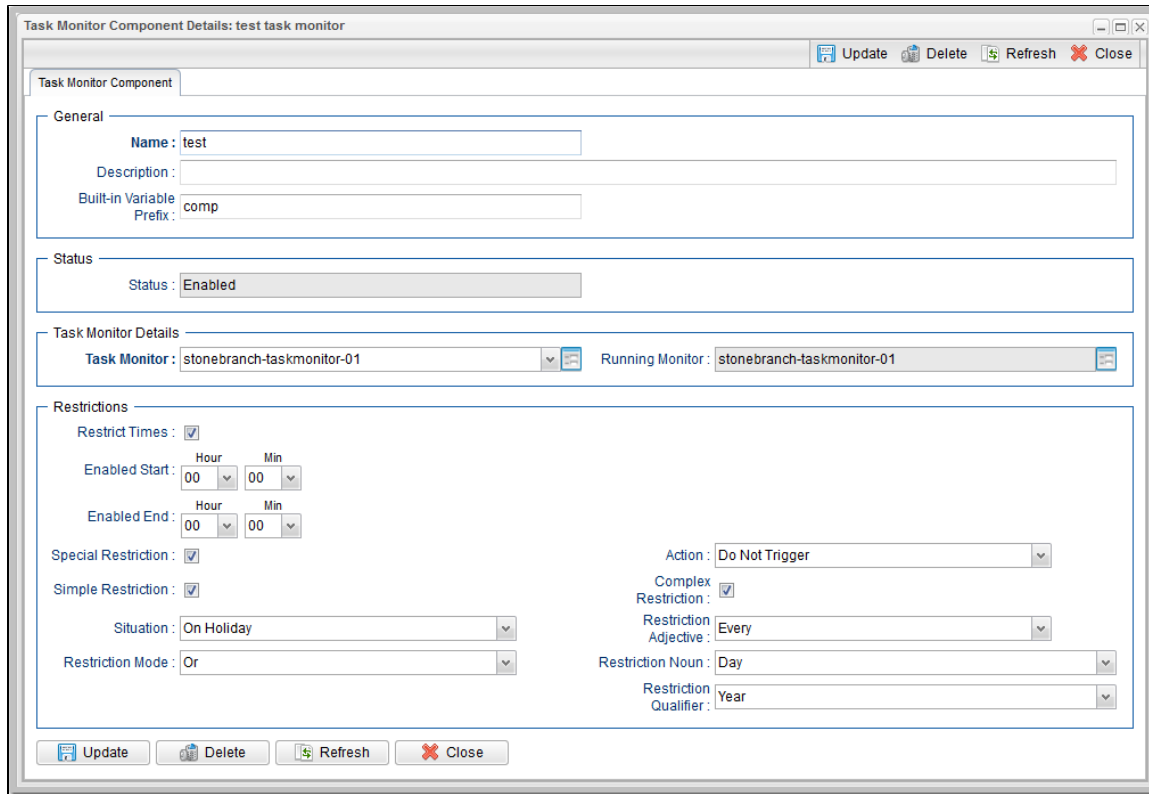
Field Name	Description
General	This section contains general information about the component.
Name	Name used within the Controller to identify this component. It can contain a maximum of 255 alphanumeric characters.
Description	User-defined; Description of this component.
Built-In Variable Prefix	User-specified prefix that enables built-in variables in the file(s) being monitored to be propagated up to the Composite trigger.

Status	This section contains information about the current status of the component.
Status	User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable / Disable buttons. Only enabled triggers are processed by the Controller.
Monitor Status	System-supplied; Lists the status of File Monitor tasks currently running that were launched by this trigger.
File Monitor Details	This section contains assorted detailed information about the component.
File Monitor	Required; File Monitor task being executed. Enter a task name, select a task from the drop-down list, or click the Task Details icon to create a new task. If a task already is specified in this field, click the Task Details icon to view the Details of that task.
Running Monitor	System-supplied; Name of the currently running task instance of the specified File Monitor task that was launched by this enabled trigger.
Restrictions	This section specifies any restrictions that apply to the component.
Restrict Times	Period during which the component is active. Enable this field and specify the start and end times in the Enabled Start and Enabled End fields.
Enabled Start	If Restrict Times is enabled, allows you to specify the start time of the period during which the component should be active. Use 24-hour time.
Enabled End	If Restrict Times is enabled, allows you to specify the end time of the period during which the component should be active. Use 24-hour time.
Special Restriction	Enable this field in order to specify additional parameters that tell the Controller how to handle exceptions, such as when the component is satisfied on a holiday or non-business day. You can specify simple and/or complex restrictions. For example, you can specify a Simple Restriction that disables the component if it is satisfied on a holiday identified in the calendar and/or a Complex Restriction that disables the component on the last business day of every month.
Simple Restriction	If enabled, allows you to specify an action (see Action field) such as Do Not Trigger on a non-business day or holiday (see Situation field). For example, do not trigger on a non-business day.
Situation	<p>If Simple Restriction is enabled, allows you to select the situation that causes the system to initiate the action specified in the Action field.</p> <p>Options:</p> <ul style="list-style-type: none"> • On Non Business Day • On Holiday

<p>Action</p>	<p>If Special Restriction is enabled, allows you to select an action to take on a non-business day or holiday (see Situation field).</p> <p>Options:</p> <ul style="list-style-type: none"> • Do Not Trigger • Next Day (run on the next day) • Next Business Day (run on the next business day, as defined in the calendar) • Previous Day (run on the previous day) • Previous Business Day (run on the previous business day, as defined in the calendar)
<p>Complex Restriction</p>	<p>If enabled, allows you to specify a set of parameters that determine one or more situations when this component should not be satisfied. Used in conjunction with the following fields: Restriction Mode, Restriction Adjective, Restriction Noun, Restriction Qualifier. For example, you may specify that you do not want to satisfy this component on the last business day of the year or the first day of each month.</p>
<p>Restriction Mode</p>	<p>If both Simple Restriction and Complex Restriction are enabled, specifies whether you want to use both restriction types (AND) or one or the other (OR).</p> <p>Options:</p> <ul style="list-style-type: none"> • And • Or
<p>Restriction Adjective</p>	<p>If Complex Restriction is enabled, the type of selection.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Last <p>Example: The last business day of the month.</p>
<p>Restriction Noun</p>	<p>If Complex Restriction is enabled, the day you want to select.</p> <p>Options:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day • Business Day • Custom Day <p>Example: The last business day of the month.</p>

Restriction Qualifier	<p>If Complex Restriction is enabled, the period you are selecting from.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom period <p>Example: The last quarter of the year.</p>
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Component Details that let you perform various actions.
Save	Saves a new record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
Update	Saves updates to the record.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this component.

Task Monitor Component



Task Monitor Component Details Field Descriptions

The following table describes the fields and buttons that display in the Task Monitor Component Details.

Field Name	Description
General	This section contains general information about the component.
Name	Name used within the Controller to identify this component. It can contain a maximum of 255 alphanumeric characters.
Description	User-defined; Description of this component.
Built-In Variable Prefix	User-specified prefix that enables built-in variables in the task(s) being monitored to be propagated up to the Composite trigger.

Status	This section contains information about the current status of the trigger.
Status	User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable / Disable buttons. Only enabled triggers are processed by the Controller.
Monitor Status	System-supplied; Lists the status of Task Monitor tasks currently running that were launched by this trigger.
Task Monitor Details	This section contains assorted detailed information about the component.
Task Monitor	Required; Task Monitor task being executed. Enter a task name, select a task from the drop-down list, or click the Task Details icon to create a new task. If a task already is specified in this field, click the Task Details icon to view the Details of that task.
Running Monitor	System-supplied; Name of the currently running task instance of the specified Task Monitor task that was launched by this enabled trigger.
Restrictions	This section specifies any restrictions that apply to the component.
Restrict Times	Period during which the component is active. Enable this field and specify the start and end times in the Enabled Start and Enabled End fields.
Enabled Start	If Restrict Times is enabled, allows you to specify the start time of the period during which the component should be active. Use 24-hour time.
Enabled End	If Restrict Times is enabled, allows you to specify the end time of the period during which the component should be active. Use 24-hour time.
Special Restriction	Enable this field in order to specify additional parameters that tell the Controller how to handle exceptions, such as when the component is satisfied on a holiday or non-business day. You can specify simple and/or complex restrictions. For example, you can specify a Simple Restriction that disables the component if it is satisfied on a holiday identified in the calendar and/or a Complex Restriction that disables the component on the last business day of every month.
Simple Restriction	If enabled, allows you to specify an action (see Action field) such as Do Not Trigger on a non-business day or holiday (see Situation field). For example, do not trigger on a non-business day.
Situation	<p>If Simple Restriction is enabled, allows you to select the situation that causes the system to initiate the action specified in the Action field.</p> <p>Options:</p> <ul style="list-style-type: none"> • On Non Business Day • On Holiday

<p>Action</p>	<p>If Special Restriction is enabled, allows you to select an action to take on a non-business day or holiday (see Situation field).</p> <p>Options:</p> <ul style="list-style-type: none"> • Do Not Trigger • Next Day (run on the next day) • Next Business Day (run on the next business day, as defined in the calendar) • Previous Day (run on the previous day) • Previous Business Day (run on the previous business day, as defined in the calendar)
<p>Complex Restriction</p>	<p>If enabled, allows you to specify a set of parameters that determine one or more situations when this component should not be satisfied. Used in conjunction with the following fields: Restriction Mode, Restriction Adjective, Restriction Noun, Restriction Qualifier. For example, you may specify that you do not want to satisfy this component on the last business day of the year or the first day of each month.</p>
<p>Restriction Mode</p>	<p>If both Simple Restriction and Complex Restriction are enabled, specifies whether you want to use both restriction types (AND) or one or the other (OR).</p> <p>Options:</p> <ul style="list-style-type: none"> • And • Or
<p>Restriction Adjective</p>	<p>If Complex Restriction is enabled, the type of selection.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Last <p>Example: The last business day of the month.</p>
<p>Restriction Noun</p>	<p>If Complex Restriction is enabled, the day you want to select.</p> <p>Options:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day • Business Day • Custom Day <p>Example: The last business day of the month.</p>


Restriction Qualifier	<p>If Complex Restriction is enabled, the period you are selecting from.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom period <p>Example: The last quarter of the year.</p>
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Component Details that let you perform various actions.
Save	Saves a new record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
Update	Saves updates to the record.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this component.

Variable Monitor Component

Variable Monitor Component Details Field Descriptions

The following table describes the fields and buttons that display in the Variable Monitor Component Details.

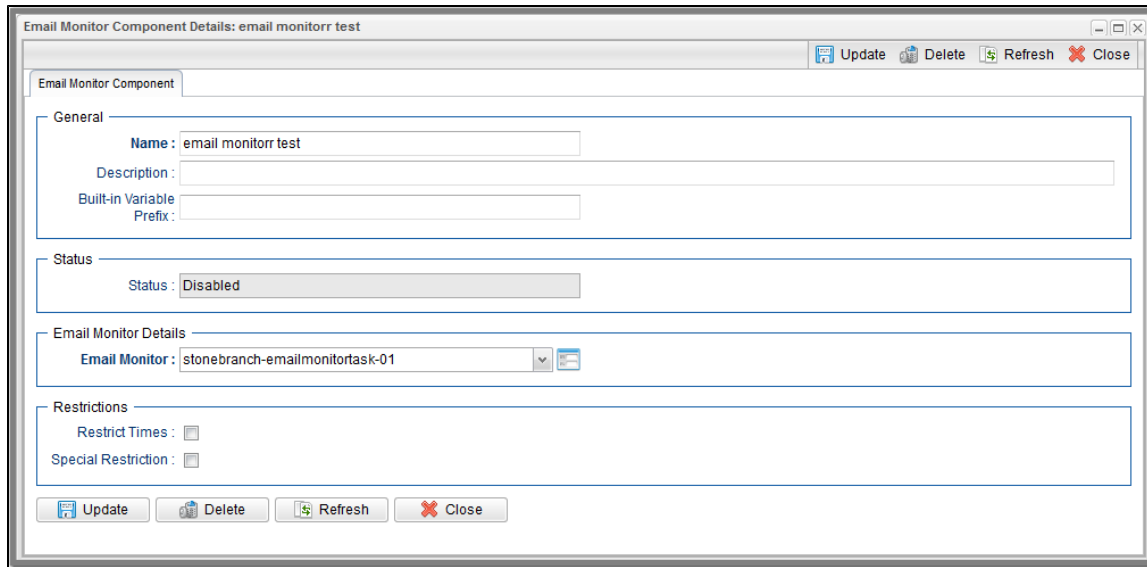
Field Name	Description
General	This section contains general information about the component.
Name	Name used within the Controller to identify this component. It can contain a maximum of 255 alphanumeric characters.
Description	User-defined; Description of this component.
Built-In Variable Prefix	User-specified prefix that enables built-in variables in the task(s) being monitored to be propagated up to the Composite trigger.

Status	This section contains information about the current status of the trigger.
Status	User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable / Disable buttons. Only enabled triggers are processed by the Controller.
Monitor Status	System-supplied; Lists the status of Variable Monitor tasks currently running that were launched by this trigger.
Variable Monitor Details	This section contains assorted detailed information about the component.
Variable Monitor	<p>Required; Variable Monitor task being executed. Enter a task name, select a task from the drop-down list, or click the Task Details icon to create a new task. If a task already is specified in this field, click the Task Details icon to view the Details of that task.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> Note If you click the Details icon to create or update a Variable Monitor, Change is pre-selected for the Variable Monitor Type field and cannot be changed.</p> </div>
Running Monitor	System-supplied; Name of the currently running task instance of the specified Variable Monitor task that was launched by this enabled trigger.
Restrictions	This section specifies any restrictions that apply to the component.
Restrict Times	Period during which the component is active. Enable this field and specify the start and end times in the Enabled Start and Enabled End fields.
Enabled Start	If Restrict Times is enabled, allows you to specify the start time of the period during which the component should be active. Use 24-hour time.
Enabled End	If Restrict Times is enabled, allows you to specify the end time of the period during which the component should be active. Use 24-hour time.
Special Restriction	Enable this field in order to specify additional parameters that tell the Controller how to handle exceptions, such as when the component is satisfied on a holiday or non-business day. You can specify simple and/or complex restrictions. For example, you can specify a Simple Restriction that disables the component if it is satisfied on a holiday identified in the calendar and/or a Complex Restriction that disables the component on the last business day of every month.
Simple Restriction	If enabled, allows you to specify an action (see Action field) such as Do Not Trigger on a non-business day or holiday (see Situation field). For example, do not trigger on a non-business day.
Situation	<p>If Simple Restriction is enabled, allows you to select the situation that causes the system to initiate the action specified in the Action field.</p> <p>Options:</p> <ul style="list-style-type: none"> • On Non Business Day • On Holiday

<p>Action</p>	<p>If Special Restriction is enabled, allows you to select an action to take on a non-business day or holiday (see Situation field).</p> <p>Options:</p> <ul style="list-style-type: none"> • Do Not Trigger • Next Day (run on the next day) • Next Business Day (run on the next business day, as defined in the calendar) • Previous Day (run on the previous day) • Previous Business Day (run on the previous business day, as defined in the calendar)
<p>Complex Restriction</p>	<p>If enabled, allows you to specify a set of parameters that determine one or more situations when this component should not be satisfied. Used in conjunction with the following fields: Restriction Mode, Restriction Adjective, Restriction Noun, Restriction Qualifier. For example, you may specify that you do not want to satisfy this component on the last business day of the year or the first day of each month.</p>
<p>Restriction Mode</p>	<p>If both Simple Restriction and Complex Restriction are enabled, specifies whether you want to use both restriction types (AND) or one or the other (OR).</p> <p>Options:</p> <ul style="list-style-type: none"> • And • Or
<p>Restriction Adjective</p>	<p>If Complex Restriction is enabled, the type of selection.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Last <p>Example: The last business day of the month.</p>
<p>Restriction Noun</p>	<p>If Complex Restriction is enabled, the day you want to select.</p> <p>Options:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day • Business Day • Custom Day <p>Example: The last business day of the month.</p>

Restriction Qualifier	<p>If Complex Restriction is enabled, the period you are selecting from.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom period <p>Example: The last quarter of the year.</p>
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Component Details that let you perform various actions.
Save	Saves a new record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
Update	Saves updates to the record.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this component.


Email Monitor Component



Email Monitor Component Details Field Descriptions

The following table describes the fields and buttons that display in the Email Monitor Component Details.

Field Name	Description
General	This section contains general information about the component.
Name	Name used within the Controller to identify this component. It can contain a maximum of 255 alphanumeric characters.
Description	User-defined; Description of this component.
Built-In Variable Prefix	User-specified prefix that enables built-in variables in the task(s) being monitored to be propagated up to the Composite trigger.
Status	This section contains information about the current status of the trigger.
Status	User-defined; indication of whether the trigger is enabled (checked) or disabled (not checked). The user enables and disables the trigger by clicking the Enable / Disable buttons. Only enabled triggers are processed by the Controller.
Monitor Status	System-supplied; Lists the status of Email Monitor tasks currently running that were launched by this trigger.

Email Monitor Details	This section contains assorted detailed information about the component.
Email Monitor	<p>Required; Email Monitor task being executed. Enter a task name, select a task from the drop-down list, or click the Task Details icon to create a new task. If a task already is specified in this field, click the Task Details icon to view the Details of that task.</p> <div data-bbox="323 334 1892 440" style="background-color: #ffffcc; padding: 10px;"> <p> Note If you click the Details icon to create or update an Email Monitor, Change is pre-selected for the Email Monitor Type field and cannot be changed.</p> </div>
Running Monitor	System-supplied; Name of the currently running task instance of the specified Email Monitor task that was launched by this enabled trigger.
Restrictions	This section specifies any restrictions that apply to the component.
Restrict Times	Period during which the component is active. Enable this field and specify the start and end times in the Enabled Start and Enabled End fields.
Enabled Start	If Restrict Times is enabled, allows you to specify the start time of the period during which the component should be active. Use 24-hour time.
Enabled End	If Restrict Times is enabled, allows you to specify the end time of the period during which the component should be active. Use 24-hour time.
Special Restriction	Enable this field in order to specify additional parameters that tell the Controller how to handle exceptions, such as when the component is satisfied on a holiday or non-business day. You can specify simple and/or complex restrictions. For example, you can specify a Simple Restriction that disables the component if it is satisfied on a holiday identified in the calendar and/or a Complex Restriction that disables the component on the last business day of every month.
Simple Restriction	If enabled, allows you to specify an action (see Action field) such as Do Not Trigger on a non-business day or holiday (see Situation field). For example, do not trigger on a non-business day.
Situation	<p>If Simple Restriction is enabled, allows you to select the situation that causes the system to initiate the action specified in the Action field.</p> <p>Options:</p> <ul style="list-style-type: none"> • On Non Business Day • On Holiday

<p>Action</p>	<p>If Special Restriction is enabled, allows you to select an action to take on a non-business day or holiday (see Situation field).</p> <p>Options:</p> <ul style="list-style-type: none"> • Do Not Trigger • Next Day (run on the next day) • Next Business Day (run on the next business day, as defined in the calendar) • Previous Day (run on the previous day) • Previous Business Day (run on the previous business day, as defined in the calendar)
<p>Complex Restriction</p>	<p>If enabled, allows you to specify a set of parameters that determine one or more situations when this component should not be satisfied. Used in conjunction with the following fields: Restriction Mode, Restriction Adjective, Restriction Noun, Restriction Qualifier. For example, you may specify that you do not want to satisfy this component on the last business day of the year or the first day of each month.</p>
<p>Restriction Mode</p>	<p>If both Simple Restriction and Complex Restriction are enabled, specifies whether you want to use both restriction types (AND) or one or the other (OR).</p> <p>Options:</p> <ul style="list-style-type: none"> • And • Or
<p>Restriction Adjective</p>	<p>If Complex Restriction is enabled, the type of selection.</p> <p>Options:</p> <ul style="list-style-type: none"> • Every • 1st • 2nd • 3rd • 4th • Last <p>Example: The last business day of the month.</p>
<p>Restriction Noun</p>	<p>If Complex Restriction is enabled, the day you want to select.</p> <p>Options:</p> <ul style="list-style-type: none"> • Sunday through Saturday • Day • Business Day • Custom Day <p>Example: The last business day of the month.</p>

Restriction Qualifier	<p>If Complex Restriction is enabled, the period you are selecting from.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom period <p>Example: The last quarter of the year.</p>
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Component Details that let you perform various actions.
Save	Saves a new record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
Update	Saves updates to the record.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this component.

Enabling and Disabling Triggers

- [Introduction](#)
- [Enabling/Disabling a Single Trigger](#)
- [Enabling/Disabling Multiple Triggers](#)
- [Enabling/Disabling One or More Triggers from the Command Line](#)

Introduction

When you define and submit a new trigger, you must enable it in order for Universal Controller to begin processing it. The Controller only processes triggers that are flagged as Enabled (Enabled triggers are Active triggers).

For tracking and compliance purposes, you must manually enable and disable triggers either by using:

- **Enable Trigger** and **Disable Trigger** buttons or [Action menu](#) items in Trigger Details.
- [Enable a Trigger](#) (ops-trigger-enable) and [Disable a Trigger](#) (ops-trigger-disable) CLI commands.

This process saves an audit record detailing the event. The trigger record also displays the ID of the user who enabled it.



Note

This does not apply to [Manual triggers](#).

Enabling/Disabling a Single Trigger

Step 1	Display either the Triggers list for the trigger or the Trigger Details.
Step 2	<p>Either:</p> <ul style="list-style-type: none"> • Right-click the trigger in the Triggers list to display an Action menu, and then click Enable or Disable. • Click the Enable or Disable button in the Trigger Details. <p>In the Trigger Details:</p> <ul style="list-style-type: none"> • The Status field in the Status section will change from Enabled to Disabled / Disabled to Enabled. • The Enabled By or Disabled By field in the Status section identifies the user that enabled / disabled the trigger.

Enabling/Disabling Multiple Triggers

Step 1	Display a Triggers list or the Active Triggers list.
Step 2	Ctrl-click each trigger on the list that you want to enable/disable.

Step 3	Right-click any of the selected triggers to display an Action menu .
Step 4	Click Enable or Disable : <ul style="list-style-type: none">• The Status field in the Status section of the Trigger Details for all selected will change from Enabled to Disabled / Disabled to Enabled.• The Enabled By or Disabled By field in the Status section of the Trigger Details for all selected triggers identifies the user that enabled / disabled the trigger.

Enabling/Disabling One or More Triggers from the Command Line

See the [Enable a Trigger](#) (ops-trigger-enable) and [Disable a Trigger](#) (ops-trigger-disable) CLI commands for instructions.

Assigning and Unassigning Trigger Execution Users

- Overview
- Determining Minimum Permissions for Assigned Execution User
- Assigning an Execution User
 - Users with ops_admin Role
 - Users without ops_admin Role
- Unassigning an Execution User

Overview

The Execution User of a task instance determines the security context under which the task instance runs.

How the task (from which the task instance was derived) is launched or triggered determines the Execution User:

- If a task is launched manually, via the Launch command, the Execution User of the task instance is the user who issued the Launch command.
- If a task is triggered manually, by issuing the [Trigger Now...](#) command:
 - For an Enabled trigger that does not have an [assigned Execution User](#), the trigger will launch the task under the context of the user that [enabled the trigger](#) (the **Enabled By** user).
 - For a Disabled trigger that does not have an [assigned Execution User](#), the trigger will launch the task under the context of the user that issued the [Trigger Now...](#) command.
 - For an Enabled or Disabled trigger that has an [assigned Execution User](#), the trigger will launch the task under the context of the assigned Execution User.
- If a task is triggered when an Enabled trigger fires at its **Next Scheduled Time**, the trigger will launch the task under the context of the user that enabled the trigger (the **Enabled By** user), or, if the Execution User is assigned on the trigger - via the [Assign Execution User...](#) command - the trigger will launch the task under the context of the trigger's Execution User.



Note

If a user is referenced by an Enabled trigger in the Enabled By field of the trigger, you can delete that user if the trigger is [assigned](#) a different Execution User.

If you attempt to [unassign](#) an Execution User from an Enabled trigger, and the Enabled By field of the trigger references an invalid user (see above), the command will fail with the following error:

Enabled By user "<user-name>" is no longer a valid username; you must disable the trigger prior to unassigning the execution user.

Determining Minimum Permissions for Assigned Execution User

When a trigger is [assigned an Execution User](#), that Execution User becomes the user (or security context) under which all task instances launched by the Trigger run.

There are a number of Universal Controller definitions that require run-time security constraint validation, as shown in the following table. Understanding which of these definitions your task instances have a dependency on will help in determining the minimum permissions required for the Execution User; without these permissions, the task instances will transition into a Start Failure.

For tasks launched by a trigger, or tasks contained in a Workflow launched by a trigger, the following requirements apply:

Tasks running on an Agent	Execution User requires Execute permission for that Agent.
Tasks requiring a Credential	Execution User requires Execute permission for that Credential. (References to Credentials can exist for both non agent-based and agent-based task types. Furthermore, agents can specify default Credentials, even if the Credentials are not directly defined on the task.)
Tasks running a Script	Execution User requires Execute permission for that Script.
Tasks needing to read a Global Variable	Execution User requires Read permission for that Global Variable.
Tasks requiring a Virtual Resource	Execution User requires Execute permission for that Virtual Resource.

Assigning an Execution User

To assign an Execution User to a trigger, you must have the **Assign Execution User Trigger permission**.

Additionally, users that do not have the `ops_admin` role must provide Execution User login credentials (User ID and Password) in order to assign the Execution User to the trigger.

Step 1	Open the trigger.
---------------	-------------------

Step 2 Right-click the trigger Details and, in the **Action** menu that displays, click **Assign Execution User....** An Assign Execution User dialog displays.

Users with ops_admin Role

Users without ops_admin Role

Step 3 Enter the user ID of the user that you want to assign as the Execution User for the task instances to be launched by this trigger. If you do not have the ops_admin Role, also enter the Password of the user.

Step 4 Click **Submit**. The **Execution User** field displays in the General Information section of the trigger Details, identifying the user you selected in the Assign Execution User dialog.

Unassigning an Execution User

To unassign an Execution User from a trigger, you must have the **Assign Execution User Trigger permission**.

Step 1	Open the trigger. The Execution User field should display in the General Information section of the trigger Details, identifying the currently defined Execution User for this trigger.
Step 2	Right-click the trigger Details and, in the Action menu that displays, click Unassign Execution User.... The Execution User identified in the Execution User field is unassigned as the Execution User for this trigger, and the Execution User field is removed from the trigger Details.

Copying Triggers

- [Overview](#)
- [Copying One or More Triggers from a Triggers List](#)
- [Copying a Trigger from the Trigger Details](#)
- [Copy Permissions](#)

Overview

You can make copies of all Universal Controller records, including triggers, 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 copies record. For triggers, **Insert** does not make copies of any [Variables](#) that are associated with the trigger.

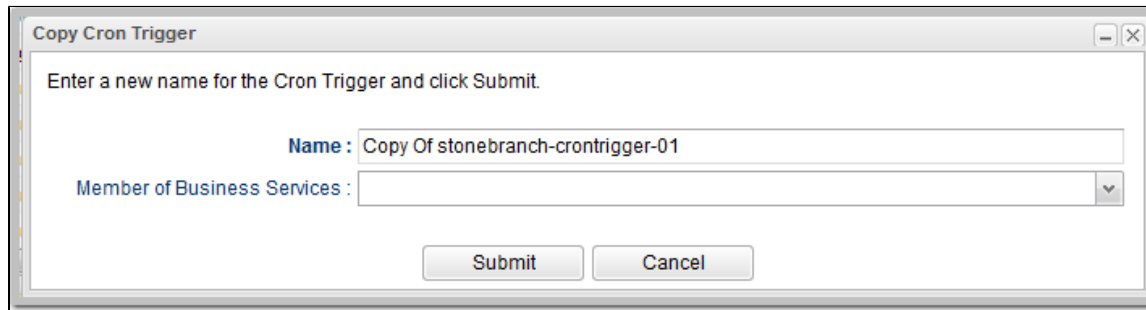
The Copy Trigger option allows you to make a complete copy of a trigger, including all of its Variables.

Copying One or More Triggers from a Triggers List

- | | |
|---------------|--|
| Step 1 | From the Automation Center navigation pane, select a trigger under Triggers . The Triggers list for that trigger type displays. |
| Step 2 | Locate the trigger(s) you want to copy (see Filtering). |

Step 3 Copy the trigger(s):**Copy One Trigger**

1. Right-click the **Trigger Name**.
2. On the **Action menu**, select **Copy**. A Copy Trigger pop-up dialog displays.



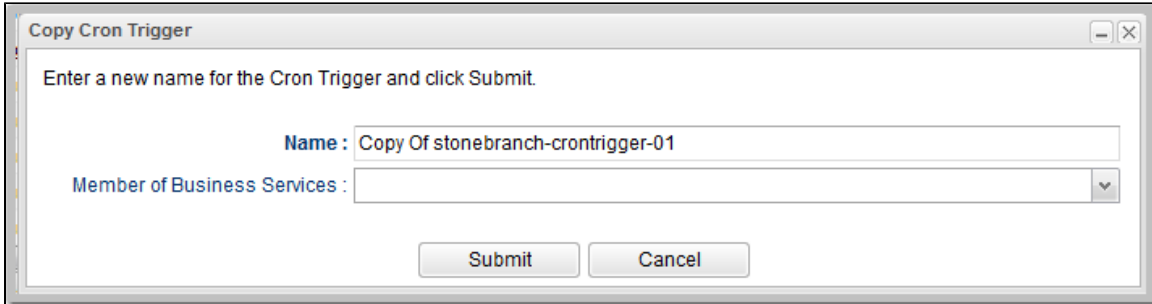
3. Enter a new name for the trigger and, optionally, select any **Business Services** that you want the trigger assigned to.
4. Click **Submit** to create a copy of the trigger.

Copy Multiple Triggers

1. Ctrl-Click the triggers you want to copy.
2. Right-click any of the selected triggers .
3. On the **Action menu**, select **Copy**.
4. On the Confirmation pop-up that displays, click **OK**. The copied triggers are added to the list, with **Copy of** added as a prefix to the Trigger Name for each trigger. If a trigger with that **Copy of** name already exists, a numerical suffix is added to the trigger name.

Copying a Trigger from the Trigger Details

Step 1 Select a task from a Triggers list. The Trigger Details for that trigger displays.

<p>Step 2</p>	<p>Either:</p> <ul style="list-style-type: none"> • Click the Copy button. • Right-click the Details to display the Action menu, and then click Copy. <p>A Copy Trigger pop-up dialog displays.</p> 
<p>Step 3</p>	<p>Enter a new name for the trigger and, optionally, select any Business Services that you want the trigger assigned to.</p>
<p>Step 4</p>	<p>Click Submit to create a copy of the trigger.</p>

Copy Permissions

To copy a Trigger, you must have both Read [permission](#) and Copy command permission for the Trigger you are copying, in addition to having Create permission for the copied Trigger.

Triggering with Variables

- Overview
- Using the Trigger Now... Pop-up Method
- Using the Variables Tab Method

Overview

Universal Controller provides two methods for manually launching all of the tasks associated with a trigger while supplying values for variables used by the task(s):

- Use the [Trigger Now... pop-up](#) method if you do not want the values that you enter for variables to persist. The values will apply only for the time the task(s) is running.
- Use the [Variables tab](#) method if you want to preserve the information (name and value) about the variables you are setting.

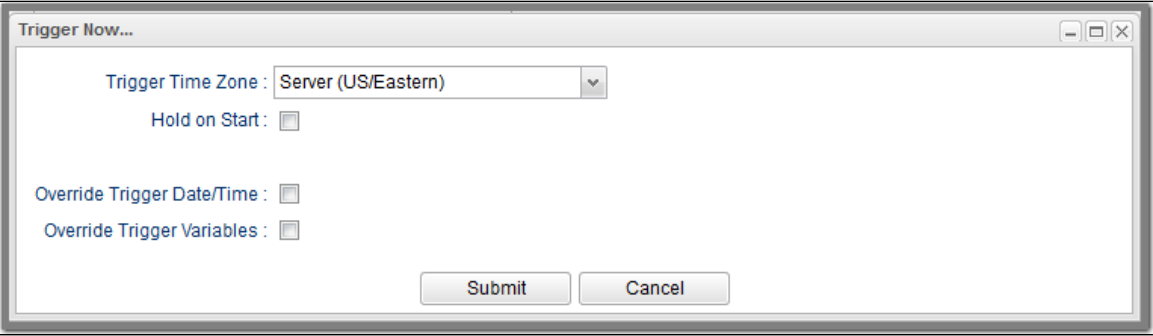
Both methods are available for all trigger types. You can use either method to manually launch task(s) when you cannot use the **Launch Task** button (in the task Details) because you want to override one or more variables.

The values that you enter when using either method override the all other values, set elsewhere, for those variables.

Variables set with the **Trigger Now...** pop-up method override any variables specified with the **Variables tab** method, but only for that run of the task(s).

The **audit** message created when you use either method is the same.

Using the Trigger Now... Pop-up Method

Step 1	From the Automation Center navigation pane, select Triggers > <trigger type> . The Triggers list for that trigger type displays.
Step 2	Right-click the trigger whose tasks you want to launch to display an Action menu .
Step 3	Click Trigger Now.... The Trigger Now... pop-up dialog displays. 
Step 4	The Trigger Time Zone field displays, by default, the time zone of the trigger, but you can change it to any time zone in the drop-down list for this particular execution of the trigger to run in.

Step 5 If you want to put the task instances in **held** status when the tasks specified in the trigger are started, select **Hold on Start**.

Step 6 Select **Override Trigger Variables** to display a Variable window in the Trigger Now... pop-up dialog. Any variables already attached to the trigger (via the **Variables** tab method) display in alphabetic order (a-z).

Trigger Time Zone : Server (US/Eastern) ▼

Hold on Start :

Override Trigger Date/Time :

Override Trigger Variables :

Name	Value
variable_1	1
variable_2	2

Variables :

Submit Cancel



Note

Additionally, you also can select **Override Trigger Date/Time** if you want to launch the tasks specified in the trigger by a specific date and time (see [Triggering by Date and Time](#)).

Step 7 To add a variable to the list, click the **+** icon and enter a **Name** and **Value** for the variable.

To remove a variable from the list, click it and then click the **-** icon.

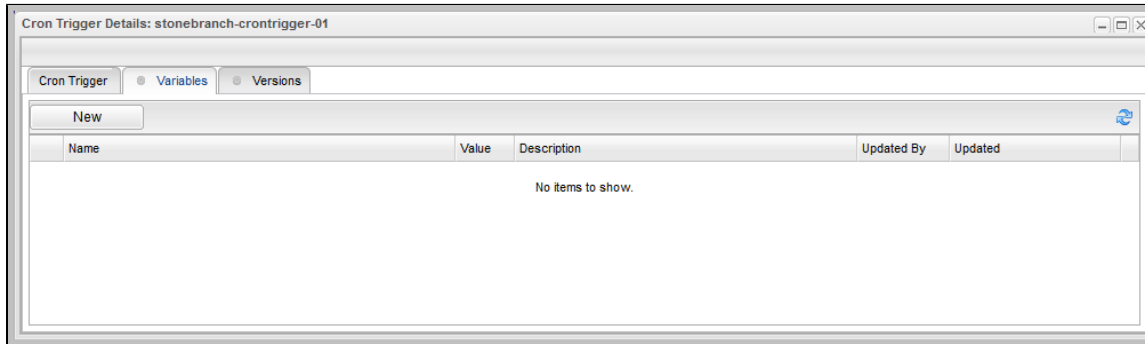
Step 8 Click **Submit** to launch the tasks named in the trigger. The variable information in the list is used where referenced in the tasks. After launching the tasks, the Controller deletes the contents of the list.

Using the Variables Tab Method

Step 1 From the [Automation Center](#) navigation pane, select **Triggers > <trigger type>**. The Triggers list for that trigger type displays.

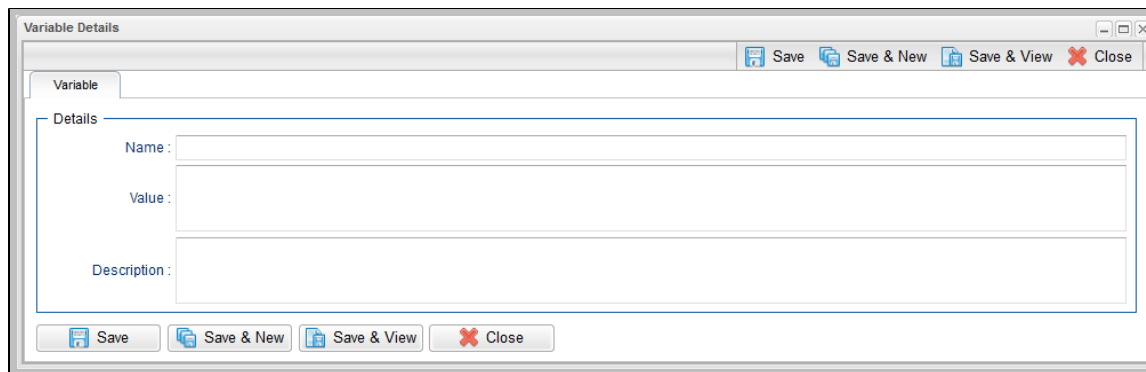
Step 2 Open the trigger whose tasks you want to launch. The Trigger Details for that trigger displays.

Step 3 Click the **Variables** tab. The Trigger Variables list displays.



Step 4 To add a variable:

1. Click **New**. A Variables Details pop-up displays.



2. Enter a Name, Value, and Description for the variable, and then click **Save**.

Step 5 To update a variable:

1. Click the icon next to a variable **Name** on the Trigger Variables list to displays the Variables Details pop-up .
2. Change the Name, Values, and/or Description of the variable, and then click **Update**.

Step 6 Click the **<trigger type> Trigger** tab.

Step 7 Click the **Trigger Now** button to launch the tasks named in the trigger.

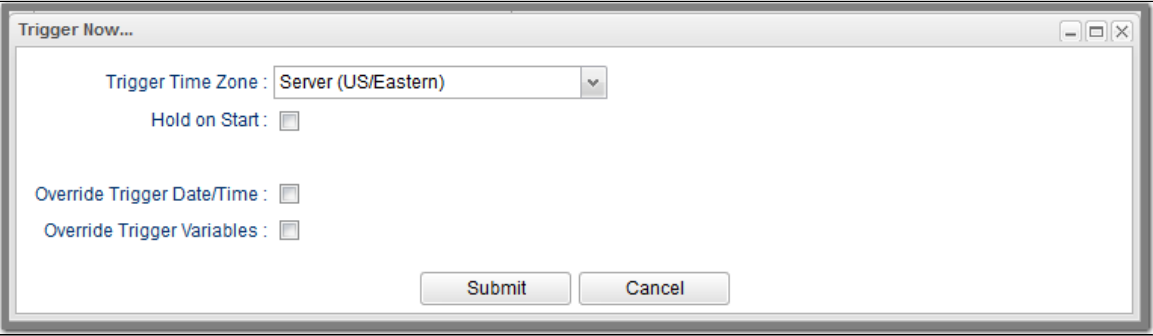
Triggering by Date and Time

- Overview
- Trigger by Date/Time

Overview

Universal Controller provides for the triggering of tasks at the present time or another specific date and time.

Trigger by Date/Time

Step 1	From the Automation Center navigation pane, select Triggers > <trigger type> . The Triggers list for that trigger type displays.
Step 2	Right-click the trigger whose tasks you want to launch to display an Action menu .
Step 3	<p>Click Trigger Now.... The Trigger Now... pop-up dialog displays.</p> 
Step 4	The Trigger Time Zone field displays, by default, the time zone of the trigger, but you can change it to any time zone in the drop-down list for this particular execution of the trigger to run in.
Step 5	If you want to put the task instances in held status when the tasks specified in the trigger are started, select Hold on Start .

Step 6 Select **Override Trigger Date/Times** to display fields in the Trigger Now... pop-up dialog that allow you to select a Date, Time, and Time Zone for this execution of the trigger.

Step 7 If the **Trigger Time Zone** field displays in the pop-up, the **Time Zone** field, by default, is read-only and displays the time zone in the **Trigger Time Zone** field, since the **Use Trigger Time Zone** field is checked.

If you want the trigger to run in a different time zone for the selected **Date** and **Time**, un-check the **Use Trigger Time Zone** field and select a time zone from the **Time Zone** drop-down list.

The **Trigger Time Zone** and **Time Zone** fields allow the trigger to run as if in one time zone, and also allow the Date and Time of the trigger to be based upon another time zone. For example, you could execute Trigger Now... to run at a specific date and time with respect to the **Time Zone**, and yet the trigger itself will run based upon the **Trigger Time Zone**.

If the task is a Workflow, **Trigger 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.

Step 8 You also can select **Override Trigger Variables** if you want to launch the tasks specified in the trigger while supplying values for variables used by the tasks (see [Triggering with Variables](#)).

Step 9 Click **Submit** to launch the tasks named in the trigger. The variable information in the list is used where referenced in the tasks. After launching the tasks, the Controller deletes the contents of the list.

Displaying Trigger Forecast Information

- Overview
- Forecast Calendar
- Forecasts List
- Forecast Details
 - Forecast Details Field Descriptions
- Forecast Calculation
- Forecast Re-Calculation
- Setting up Forecasting
- Next Scheduled Time
 - Overdue Timers
- List Qualifying Times

Overview

Four methods are available for displaying forecasting information on time-based triggers (Time, Cron, and Temporary) and the tasks they launch:

- [Forecast Calendar](#) displays a calendar showing tasks scheduled to run based on Time, Cron, and Temporary triggers. Where data is available, the estimated end time for each task also is calculated and displayed.
- [Forecasts List](#) displays a sequential list of the tasks shown in the [Forecast Calendar](#).
- [Next Scheduled Time](#) field in Time, Cron, and Temporary trigger Details identifies the next time a trigger will launch its task(s).
- [List Qualifying Times](#) button in Time and Cron triggers Details displays a list of the next 30 qualifying dates and times.

Each of these methods is described below.

Forecast Calendar

For [enabled](#) Time, Temporary, and Cron triggers where forecasting has been specified, Universal Controller writes an entry to the Forecast Calendar (and the [Forecasts List](#)) for each time that a trigger task is scheduled to run within the next N days, where N is the forecast period specified in the [Forecast Period in Days](#) Universal Controller system property.

To display the Forecast Calendar, from the [Automation Center](#) navigation pane select **Triggers > Forecast Calendar**.

Forecast Calendar						
◀ Jul 2014 ▶						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	1	2	3	4	5
				12:00am win-dir	12:00am win-dir	
6	7	8	9	10	11	12
	12:00am win-dir	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	08:00pm stonebranch-win...
13	14	15	16	17	18	19
08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	08:00pm stonebranch-win...
20	21	22	23	24	25	26
08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	08:00pm stonebranch-win...
27	28	29	30	31	1	2
08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	12:00am win-dir 08:00pm stonebranch-win...	08:00pm stonebranch-win...

To display Details about an entry in the Forecast Calendar, click the entry. A Forecast Details pop-up displays. (You also can display Forecast Details by clicking an entry in the Forecasts List.)

Forecasts List

The Forecasts list displays information about every entry in the Forecast Calendar, plus information on tasks within a Workflow launched by a trigger.

To display the Forecasts List, from the Automation Center navigation pane select **Triggers > Forecasts**.

Forecasts

31 Forecasts Custom Filter -- None -- Filter...

Trigger	Task	Launch Time	End Time	Updated By	Updated
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-08 20:00:00 -0400	2014-07-08 20:00:00 -0400	stonebranch-user-01	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-09 20:00:00 -0400	2014-07-09 20:00:00 -0400	stonebranch-user-02	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-10 20:00:00 -0400	2014-07-10 20:00:00 -0400	stonebranch-user-03	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-11 20:00:00 -0400	2014-07-11 20:00:00 -0400	stonebranch-user-04	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-12 20:00:00 -0400	2014-07-12 20:00:00 -0400	stonebranch-user-05	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-13 20:00:00 -0400	2014-07-13 20:00:00 -0400	stonebranch-user-02	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-14 20:00:00 -0400	2014-07-14 20:00:00 -0400	stonebranch-user-01	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-15 20:00:00 -0400	2014-07-15 20:00:00 -0400	stonebranch-user-02	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-16 20:00:00 -0400	2014-07-16 20:00:00 -0400	stonebranch-user-03	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-17 20:00:00 -0400	2014-07-17 20:00:00 -0400	stonebranch-user-04	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-18 20:00:00 -0400	2014-07-18 20:00:00 -0400	stonebranch-user-05	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-19 20:00:00 -0400	2014-07-19 20:00:00 -0400	stonebranch-user-02	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-20 20:00:00 -0400	2014-07-20 20:00:00 -0400	stonebranch-user-01	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-21 20:00:00 -0400	2014-07-21 20:00:00 -0400	stonebranch-user-02	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-22 20:00:00 -0400	2014-07-22 20:00:00 -0400	stonebranch-user-03	2014-07-07 17:13:19 -0400
stonebranch-crontrigger-01	stonebranch-windowstask-01	2014-07-23 20:00:00 -0400	2014-07-23 20:00:00 -0400	stonebranch-user-04	2014-07-07 17:13:19 -0400

Forecast Details

To display the [Details](#) about a Forecast in the list, either:

- Click the Details icon next to the **Trigger** Name to display a Forecast Details pop-up.
- Click the Forecast entry in the list to display the Forecast Details below the list.

(You also can display Forecast Details by clicking an entry in the [Forecast Calendar](#).)

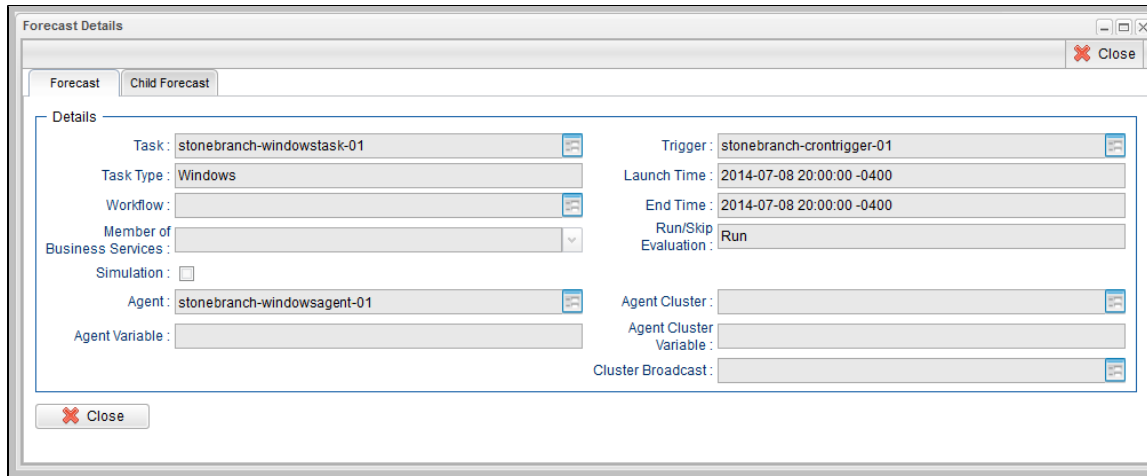
Forecast Details

Forecast Details displays information about the task, workflow, agent, and trigger associated with a trigger Forecast.

(For a workflow, only details about tasks and triggers are available.)

You can displays Forecast Details either by:

- Clicking an entry in the [Forecasts Calendar](#).
- Clicking an entry in the [Forecasts List](#).



Click the Details icon next to any field to view Details of that record.

See the [field descriptions](#) below for a description of all fields in the Forecast Details.

Forecast Details Field Descriptions

The following table describes the fields and tabs that display in the Forecast Details.

Field Name	Description
Details	This section contains detailed information about the forecast.
Task	Name of the task selected in the Forecast Calendar. The icon is a link to the Task Details for this task.
Task Type	Task type of this task.
Workflow	For tasks included in a Workflow: Name of the Workflow in which this task is included. The icon is a link to the Workflow Details for this Workflow.
Member of Business Services	One or more Business Services that this task belongs to.
Trigger	Name of the trigger that will launch this task (or the Workflow in which this task is included). The icon is a link to the Trigger Details for this trigger.
Launch Time	Calculated start time of this task.
End Time	Calculated end time of this task.

Run/Skip Evaluation	<p>Evaluation, based on run/skip criteria specified for this task via the Workflow Task Details, of whether this task will run or skip when the Workflow is run.</p> <p>Tasks, including Workflows, launched directly by the trigger will always have a run/skip evaluation of Run. Likewise, tasks within a launched Workflow that do not have any run or skip defined will always have a run/skip evaluation of Run.</p> <p>Any task within a Workflow with run or skip utilizing variables will have a run/skip evaluation of Not Evaluated.</p>
Simulation	Indication of whether or not this forecast is based on the simulated launch of this trigger.
Agent	Name of the Agent resource record that identifies the machine where the task will run.
Agent Variable	If enabled in the Task Details for this task, the Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable.
Agent Cluster	Group of Agents, one of which the Controller will choose to run this task.
Agent Cluster Variable	If enabled in the Task Details for this task, the Agent Cluster field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable.
Cluster Broadcast	Specification for a Cluster Broadcast in addition to or in place of a specific Agent and/or Agent Cluster. An agent cluster specified in this field causes the Controller to run the task on all the Agents in the cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately in the Activity monitor.
Tabs	This section identifies the tabs across the top of the Forecast Details that provide access to additional information about the forecast.
Child Forecasts tab	For Workflows only; Displays a list of forecast information for tasks within this Workflow (see Forecast List , below).

Forecast Calculation

As the tasks are run, the Controller calculates the end time of each Forecast entry. The calculation is the average run time, based on task instances that already have run. This information is updated each time you display the forecast.

As task instances run within the Controller, task instance durations are collected, allowing the Controller to calculate their average run time. The average run time is used to determine the estimated end time provided on each Forecast entry. For task instances that run within a triggered Workflow, an average start offset within the Workflow, along with the average run time, are used to determine the estimated launch time and end time.

To reset the statistics information collected by the Controller for a particular task or Workflow, use the **Reset Statistics** command under [Task Permissions](#).

Forecast Re-Calculation

Certain changes in the system will automatically cause a re-calculation of forecast data. However, not all changes will result in immediate re-calculation.

Changes to the Details of an enabled trigger that impact the schedule of that trigger or the tasks launched by that trigger will result in an immediate re-calculation of the Forecast data for that trigger.

Changes to the agent, agent variable, agent cluster, agent cluster variable, or broadcast cluster fields of a task will be reflected immediately in the any forecast data referring to that particular task.

Changes to the Details of a Workflow launched by a trigger or a calendar used by a trigger (including the custom days within the calendar) will result in the forecast data of an associated trigger being flagged for re-calculation, as indicated by the Forecast Recalculation Required field. Any forecast data flagged for re-calculation will be re-calculated automatically at 12:00 a.m. (midnight) daily.

Whenever Override Calendar options are modified for a workflow, any forecast data associated with that workflow will be flagged for recalculation at the midnight refresh.

Statistics for a particular task may not be available at the time the original forecast calculation occurs. Therefore, the accuracy of estimated end times for triggered tasks, as well as the estimated start and end times of tasks launched within a triggered Workflow, may be inaccurate. The current accuracy of a Forecast record is indicated by the End Time Accuracy field. The End Time Accuracy is based upon the number of task instance runs for which historical data has been collected *at the time of forecast calculation*. It can have one of the following values.

Runs	Accuracy
0	0
1	Low
2-9	Medium
10+	High

Any Forecast data with accuracy that can be improved significantly through re-calculation will be re-calculated automatically at 12:00 a.m. (midnight) daily.

For any Forecast data for which you wish to force an immediate re-calculation, use the **Recalculate Forecast** command from the Trigger record or from the Workflow record.



Note

By default, the Forecast Recalculation Required and End Time Accuracy columns are not included in the Forecasts list. However, you can add them to the list.

Setting up Forecasting



Warning

We strongly discourage enabling forecasting for very frequent and predictable trigger schedules.

For example, if you enable forecasting on a trigger that runs every 30 seconds, that would generate - at a minimum - 89,280 forecast records, based on the default configuration of 31 days of forecasting. If that trigger launches a Workflow task, it would generate an extra 89,280 forecast records per task within the workflow.

For these types of triggers, the forecast feature does not provide much insight, yet it requires a very large amount of processing to compute.

Use the following points as a checklist when setting up forecasting:

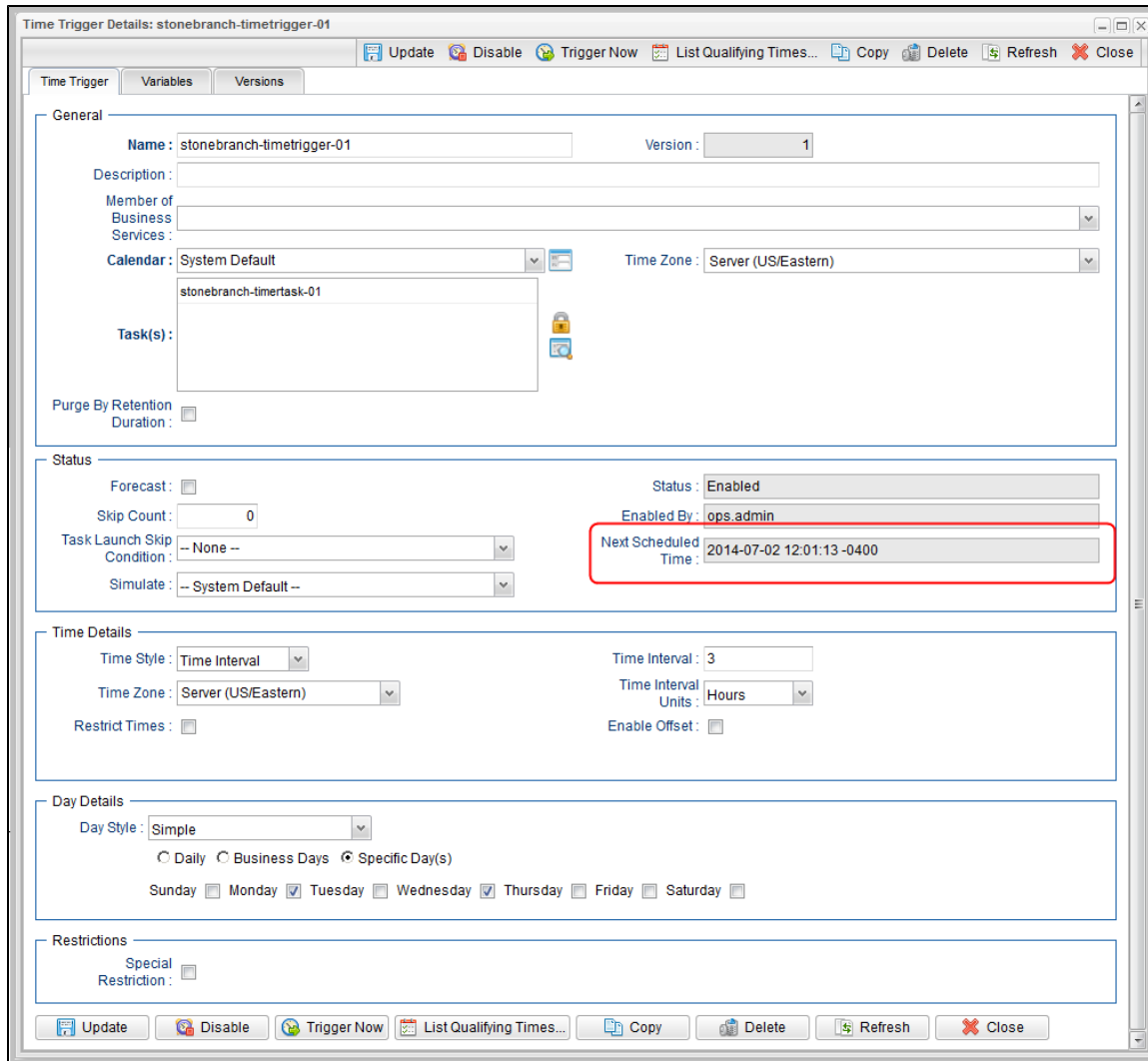
- Forecasting is supported for the following trigger types: [Time](#), [Temporary](#), and [Cron](#).
- In the trigger Details, enable the **Forecast** field.
- Specify the number of days for which you want scheduled tasks to display in the Forecast Calendar / Forecast List (default is 31):
 1. From the **Administration** navigation pane, select **Configuration > Properties**. (You need administrative privileges to access this function.)
 2. Click **Forecast Period In Days** Value column and enter the number of days you want in the forecast period.
- Enable the trigger. (Disabling the trigger removes all related entries from the Forecast calendar / Forecast list.)

Next Scheduled Time

For enabled Time, Temporary, and Cron triggers, the Controller calculates the next scheduled time and displays it on the Triggers list, as well as on the All Triggers and Active Triggers lists, for those trigger types.

Name	Description	Next Scheduled Time	Time Style	Day Style	Calendar	Enabled	Calendar	Updated By	Updated
stonebranch-timetrigger-01		2014-07-02 12:01:13 -0400	Time Interval	Simple	System Default	✔	System Default	stonebranch-user-01	2014-06-20 14:35:00 -0400
stonebranch-timetrigger-02			Time	Simple	System Default	✘	System Default	stonebranch-user-02	2014-06-13 14:43:30 -0400
stonebranch-timetrigger-03			Time	Simple	System Default	✘	System Default	stonebranch-user-03	2014-06-13 14:43:36 -0400
stonebranch-timetrigger-04			Time	Simple	System Default	✘	System Default	stonebranch-user-04	2014-06-13 14:43:41 -0400
stonebranch-timetrigger-05			Time	Simple	System Default	✘	System Default	stonebranch-user-05	2014-06-13 14:43:46 -0400

The next scheduled time also displays in the trigger Details:



Overdue Timers

If the Controller has been stopped for a significant amount of time (more than two days), upon start-up, and under certain conditions, overdue Triggers could be ignored and disabled. If a Trigger's timer (the Trigger's **next scheduled time**) is considered "stale/expired," the timer will be ignored and the associated Trigger will be disabled.

If this occurs, there will be log messages similar to the following:

```
Found overdue timer exceeding restart threshold limit of 2 days. Timer overdue by: 3 Days 1 Hour 57 Minutes 52 Seconds (2016-06-27 14:15:00
-0400) **** Timer is being cancelled *** TriggerTimerHandlerBean [...]

Disabling Trigger since stale timer was found and the next scheduled time was stale TimeTriggerBean [...]
```

A "stale/expired" trigger is calculated based on the value of the `opswise.overdue.timer.startup.threshold` Universal Controller start-up property (default is 2 days). If the default is specified, any enabled Trigger with a next scheduled time older than two days will be considered "stale/expired."

The property can be changed to a larger amount to avoid this behavior, if desired.

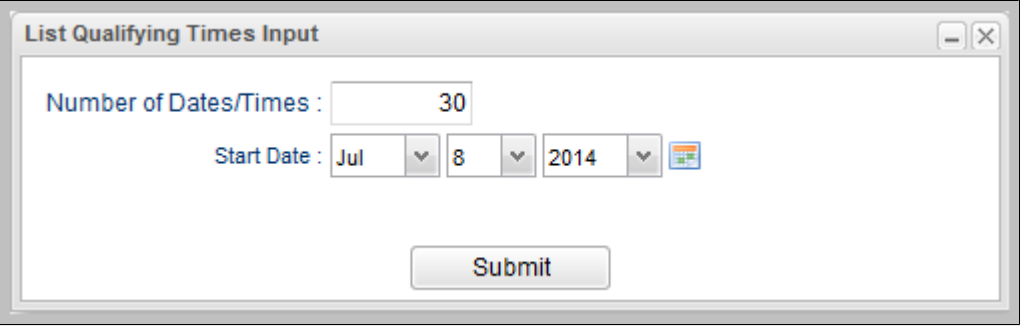
List Qualifying Times

For Time and Cron triggers, you can display a list of dates and times for when the trigger (if enabled) will be satisfied.



Note

This list differs from the [Forecasts list](#), which shows scheduled task instances as opposed to qualifying times.

Step 1	In the trigger Details for a Cron or Time trigger, click the List Qualifying Times button. A List Qualifying Times Input pop-up dialog displays.
	
Step 2	In the Number of Dates/Times field, enter the number of dates and times that you want to be listed (default = 30, maximum = 1000).
Step 3	Enter / select a Start Date from when you want the list of Dates and Times to begin.
Step 4	Click the Submit button to display a table of Qualifying Dates and Times .

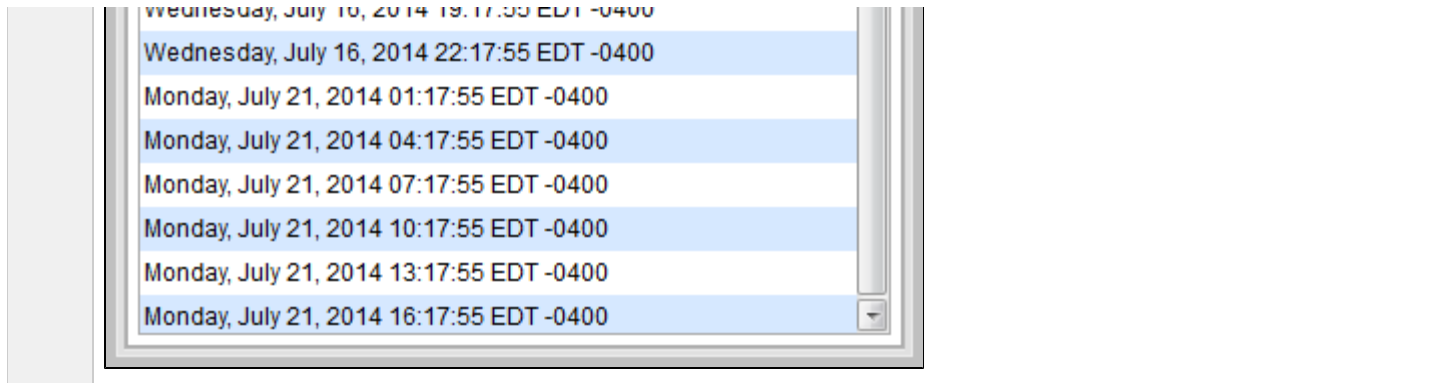
Qualifying Times

stonebranch-timetrigger-01

Listing From: Tuesday, July 08, 2014 16:17:55 EDT -0400

User/Trigger Timezone: US/Eastern

Wednesday, July 09, 2014 01:17:55 EDT -0400
Wednesday, July 09, 2014 04:17:55 EDT -0400
Wednesday, July 09, 2014 07:17:55 EDT -0400
Wednesday, July 09, 2014 10:17:55 EDT -0400
Wednesday, July 09, 2014 13:17:55 EDT -0400
Wednesday, July 09, 2014 16:17:55 EDT -0400
Wednesday, July 09, 2014 19:17:55 EDT -0400
Wednesday, July 09, 2014 22:17:55 EDT -0400
Monday, July 14, 2014 01:17:55 EDT -0400
Monday, July 14, 2014 04:17:55 EDT -0400
Monday, July 14, 2014 07:17:55 EDT -0400
Monday, July 14, 2014 10:17:55 EDT -0400
Monday, July 14, 2014 13:17:55 EDT -0400
Monday, July 14, 2014 16:17:55 EDT -0400
Monday, July 14, 2014 19:17:55 EDT -0400
Monday, July 14, 2014 22:17:55 EDT -0400
Wednesday, July 16, 2014 01:17:55 EDT -0400
Wednesday, July 16, 2014 04:17:55 EDT -0400
Wednesday, July 16, 2014 07:17:55 EDT -0400
Wednesday, July 16, 2014 10:17:55 EDT -0400
Wednesday, July 16, 2014 13:17:55 EDT -0400
Wednesday, July 16, 2014 16:17:55 EDT -0400
Wednesday, July 16, 2014 19:17:55 EDT -0400
Wednesday, July 16, 2014 22:17:55 EDT -0400



Calendars

- [Overview](#)
- [Setting up Calendars](#)
- [Using Calendars](#)

Overview

Calendars define business days, holidays, and other special days. Universal Controller uses calendars, in conjunction with [triggers](#), to define when tasks are run.

Setting up Calendars

The process for setting up your calendars is:

Create global custom days	Create the global custom days that you will need for any of your calendars.
Create calendars	Create one or more calendars that will need for any of your triggers.
Assign global custom days to calendars	Assign one or more of the global custom days to one or more of the calendar(s).
Create local custom days	Create any local custom days to be used only by the Calendars for which they were created.
Create copies of calendars	Create one or more copies of any calendar, as desired.

You can assign a global custom day, which can be used by any calendar, to a calendar either from the [Custom Day](#) or from the [Calendar](#).

A local custom day, which can be used only by the calendar for which it was created, is automatically assigned to that calendar.

Using Calendars

The Controller uses the calendar specified in a trigger to determine the run dates for the task(s) specified in that trigger:

- If you select Business Days in a trigger, the calendar identifies those business days.
- If you select Day Style = Complex in a trigger:
 - All [custom days](#) - for a single day - attached to the calendar are selectable day types (in the trigger's Date Noun drop-down menu).
 - All custom days - for a period of days - attached to the calendar are selectable day types (in the trigger's Date Qualifier drop-down menu).
- If you select Special Restriction in a trigger, the calendar defines the Holidays or Non Business days.

Creating Custom Days

- Overview
- Creating (Global) Custom Days
 - Custom Day Details
 - Custom Day Details Field Descriptions
- Creating Local Custom Days
 - Local Custom Day Details
 - Local Custom Day Details Field Descriptions
- Generating a List of Qualifying Dates
- Generating a List of Qualifying Periods
- Assigning a Custom Day to a Calendar
 - Assign a Custom Day to an Existing Calendar
 - Create a Calendar and Assign the Custom Day to It

Overview

A Custom Day defines a single one-time date, a repeating date, or a list of dates. Custom Days are assigned to Calendars.

There are two types of Custom Days:

Custom Days	Custom Days are global custom days; they can be assigned to any Calendar. You create a Custom Day via the Custom Days page, which is accessed via the Automation Center navigation pane.
Local Custom Days	Local Custom Days are assigned automatically only to the Calendar for which they were created. You create a Local Custom Day via the Local Custom Days tab in a Calendar Details.

Creating (Global) Custom Days

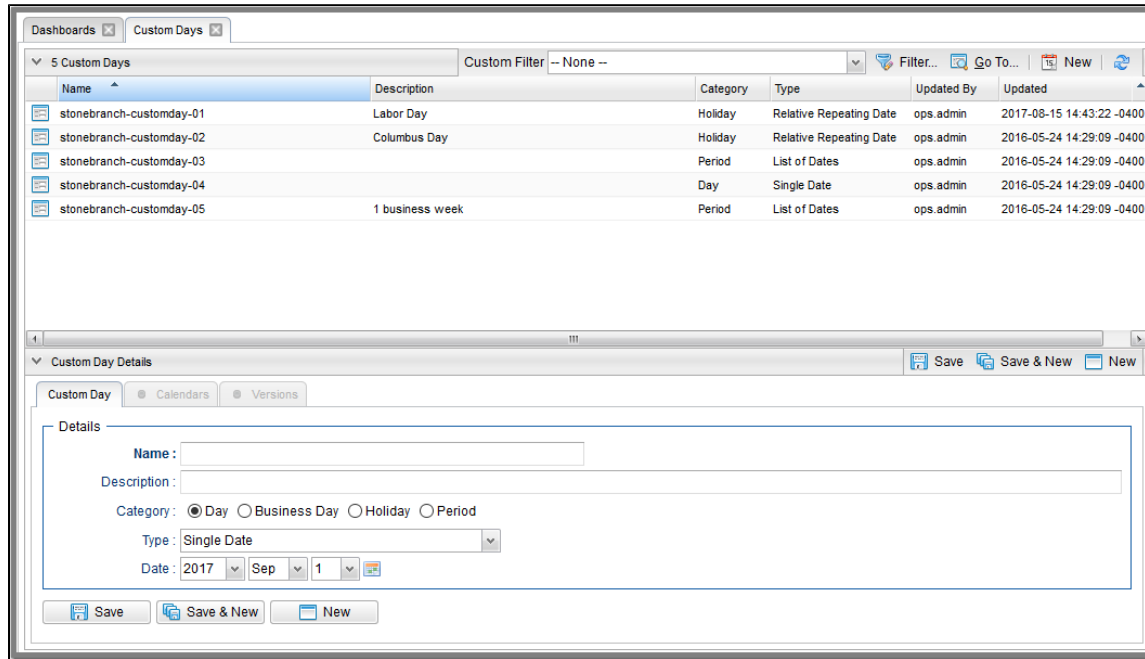


Note

The [Custom Day Global Permitted](#) Universal Controller system property must be set to **true** (the default) in order for you to create global Custom Days. If Custom Days already exist on the Controller, you cannot set the property to **false**.

Step 1 From the **Automation Center** navigation pane, select **Other > Custom Days**. The Custom Days list displays.

Below the list, Custom Day Details for a new Custom Day displays.



Step 2 Enter / select Details for a new Custom Day, 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 Custom Day is added to the database, and all buttons and tabs in the 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](#)).

Custom Day Details

The following Custom Day Details is for an existing Custom Day.

Depending on the values that you enter / select for these fields, more (or less) fields may display. See the [field descriptions](#), below, for a description of all fields that may display in the Custom Day Details.













For information on how to access additional details - such as [Metadata](#) and complete [database Details](#) - for Custom Days (or any type of record), see [Records](#).



Custom Day Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Custom Day Details.

Field Name	Description
Details	This section contains detailed information about the Custom Day.
Name	Name of this Custom Day.
Version	System-supplied; version number of the current record, which is incremented by the system every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .

Description	Description of this Custom Day.								
Category	<p>Category of this Custom Day.</p> <p>Options:</p> <table border="1" data-bbox="338 350 1959 589"> <tr> <td data-bbox="338 350 485 399">Day</td> <td data-bbox="485 350 1959 399">This Custom Day defines any day.</td> </tr> <tr> <td data-bbox="338 399 485 472">Business Day</td> <td data-bbox="485 399 1959 472">This Custom Day defines a business day.</td> </tr> <tr> <td data-bbox="338 472 485 545">Holiday</td> <td data-bbox="485 472 1959 545">This Custom Day defines a holiday. Dates flagged as holidays become involved when the user enables Special Restriction on a trigger and selects a situation of On Holiday.</td> </tr> <tr> <td data-bbox="338 545 485 589">Period</td> <td data-bbox="485 545 1959 589">This Custom Day defines a custom period of days (for example: quarters, fiscal year, or 4-5-4 calendar).</td> </tr> </table> <p>You can select a Period Custom Day in:</p> <ul data-bbox="390 662 1545 735" style="list-style-type: none"> • Date Qualifier field for Time Triggers and Composite Trigger Time Components. • Restriction Qualifier field for all triggers (except Manual and Temporary triggers) and all Composite Trigger Components. • Complex Qualifier field for Task Run Criteria. <p>You can select Day, Business Day, and Holiday Custom Days in:</p> <ul data-bbox="390 808 1518 881" style="list-style-type: none"> • Date Noun field for Time triggers and Composite Trigger Time Components. • Restriction Noun field for all triggers (except Manual and Temporary triggers) and all Composite Trigger Components. • Complex Noun field for Task Run Criteria. 	Day	This Custom Day defines any day.	Business Day	This Custom Day defines a business day.	Holiday	This Custom Day defines a holiday. Dates flagged as holidays become involved when the user enables Special Restriction on a trigger and selects a situation of On Holiday.	Period	This Custom Day defines a custom period of days (for example: quarters, fiscal year, or 4-5-4 calendar).
Day	This Custom Day defines any day.								
Business Day	This Custom Day defines a business day.								
Holiday	This Custom Day defines a holiday. Dates flagged as holidays become involved when the user enables Special Restriction on a trigger and selects a situation of On Holiday.								
Period	This Custom Day defines a custom period of days (for example: quarters, fiscal year, or 4-5-4 calendar).								
Type	<p>Type of Custom Day.</p> <p>Options:</p> <ul data-bbox="390 1052 1948 1198" style="list-style-type: none"> • Single Date - Any one-time date. • Relative Repeating Date - An annual (repeating) date that changes from year to year. For example, the U.S. Thanksgiving falls on the 4th Thursday of November, and is therefore on a different date every year. • Absolute Repeating Date - An annual (repeating) date that does not change from year to year. For example, the Canadian holiday Canada Day falls on July 1st of every year. • List of Dates - The dates are listed below. 								
Date (yyyy-mm-dd)	If Type = Single Date; specific date for this Custom Day (selected from the drop-down lists or the Calendar tool).								

<p>Dates</p>	<p>If Type = List of Dates; multiple specific dates for this Custom Day.</p> <div data-bbox="338 186 957 654" style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> </div> <p>The icons at the top of the list let you perform the following tasks:</p> <table border="1" data-bbox="338 751 1260 1101" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"></td> <td>Add Dates</td> <td>Displays a Date Picker dialog that lets you: <ul style="list-style-type: none"> Add one or more Dates to the list. Clear all Dates from the list. Display a list of selected Dates. </td> </tr> <tr> <td style="text-align: center;"></td> <td>Add item</td> <td>Lets you add a single Date to the list.</td> </tr> <tr> <td style="text-align: center;"></td> <td>Remove selected item</td> <td>Lets you remove one or more selected Dates from the list.</td> </tr> <tr> <td style="text-align: center;"></td> <td>Remove Past Dates</td> <td>Lets you remove all Dates prior to the current Date from the list.</td> </tr> </table>		Add Dates	Displays a Date Picker dialog that lets you: <ul style="list-style-type: none"> Add one or more Dates to the list. Clear all Dates from the list. Display a list of selected Dates. 		Add item	Lets you add a single Date to the list.		Remove selected item	Lets you remove one or more selected Dates from the list.		Remove Past Dates	Lets you remove all Dates prior to the current Date from the list.
	Add Dates	Displays a Date Picker dialog that lets you: <ul style="list-style-type: none"> Add one or more Dates to the list. Clear all Dates from the list. Display a list of selected Dates. 											
	Add item	Lets you add a single Date to the list.											
	Remove selected item	Lets you remove one or more selected Dates from the list.											
	Remove Past Dates	Lets you remove all Dates prior to the current Date from the list.											
<p>When</p>	<p>If Type = Relative Repeating Date; Occurrence of this day in the month. Options: 1st, 2nd, 3rd, 4th, Last, Every. Example: The 4th Thursday of November.</p>												
<p>Day Of Week</p>	<p>If Type = Relative Repeating Date; Day of the week. Example: The 4th Thursday of November.</p>												
<p>Month</p>	<p>If Type = Relative Repeating Date or Absolute Repeating Date; Month of the year, or All. Example: The fourth Thursday of November.</p>												
<p>Day</p>	<p>If Type = Absolute Repeating Date; Day of the month (1 through 31). Example: December 25.</p>												

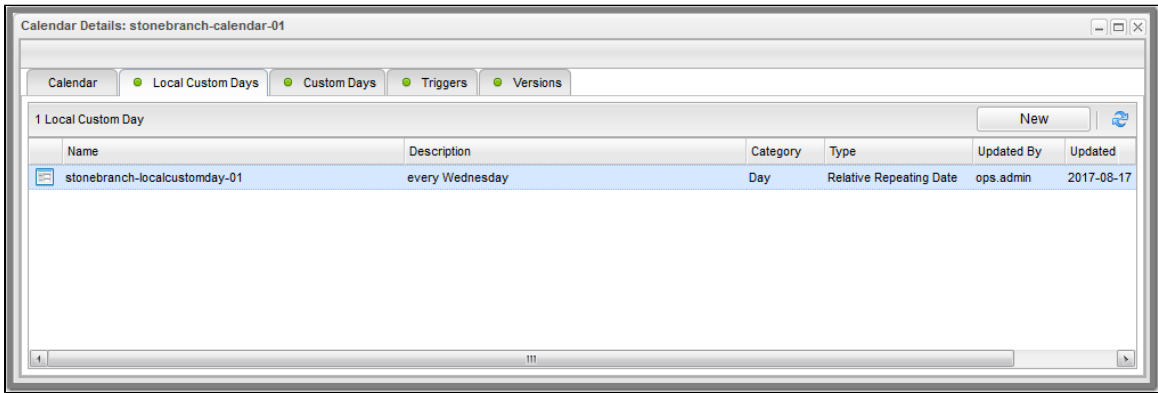
Adjustment	<p>If Type = Relative Repeating Date; Allows you to adjust the Relative Repeating Date by a less or plus number of Days or Business Days.</p> <p>Options:</p> <ul style="list-style-type: none"> • - - None - - • Less • Plus <p>Default is - - None - -.</p> <div style="background-color: #ffffcc; padding: 5px; margin-top: 10px;">  Note The Adjustment field is not available if the Category is Period. </div>
Adjustment Amount	<p>If Adjustment = Less or Plus; Allows you to specify the number of Days or Business Days to adjust the Relative Repeating Date. Maximum is 366. Default is 1.</p>
Adjustment Type	<p>If Adjustment = Less or Plus; Allows you to specify the type of day by which to adjust the Relative Repeating Date.</p> <p>Options:</p> <ul style="list-style-type: none"> • Day • Business Day <p>Default is Day.</p> <div style="background-color: #ffffcc; padding: 5px; margin-top: 10px;">  Note Business Day is not allowed if Category is Holiday or Business Day. </div>
Metadata	<p>This section contains Metadata information about this record.</p>
UUID	<p>Universally Unique Identifier of this record.</p>
Updated By	<p>Name of the user that last updated this record.</p>
Updated	<p>Date and time that this record was last updated.</p>
Created By	<p>Name of the user that created this record.</p>
Created	<p>Date and time that this record was created.</p>
Buttons	<p>This section identifies the buttons displayed above and below the Custom Day Details that let you perform various actions.</p>
Save	<p>Saves a new task record in the Controller database.</p>
Save & New	<p>Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.</p>
Save & View	<p>Saves a new record in the Controller database and continues to display that record.</p>

New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
List Qualifying Dates	If Period is not enabled and Type is not Single Date; Displays a list of the next 30 dates on which this day occurs (see Generating a List of Qualifying Dates , below).
List Qualifying Periods	If Period is enabled; Displays a list of the next 30 periods in which this day occurs (see Generating a List of Qualifying Periods , below).
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Custom Day Details that provide access to additional information about the task instance.
Calendars	Displays all calendars that use this custom day.
Versions	Stores copies of all previous versions of the current record. See Record Versioning .

Creating Local Custom Days

Step 1 Open a [Calendar](#) for which you want to create a Local Custom Day.

Step 2 Click the Local Custom Days tab to display a list of existing Local Custom Days for that Calendar.



Step 3 Click the **New** button to display Local Custom Day Details for a new Local Custom Day.

Step 4 Enter / select Details for a new Custom Day, 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:

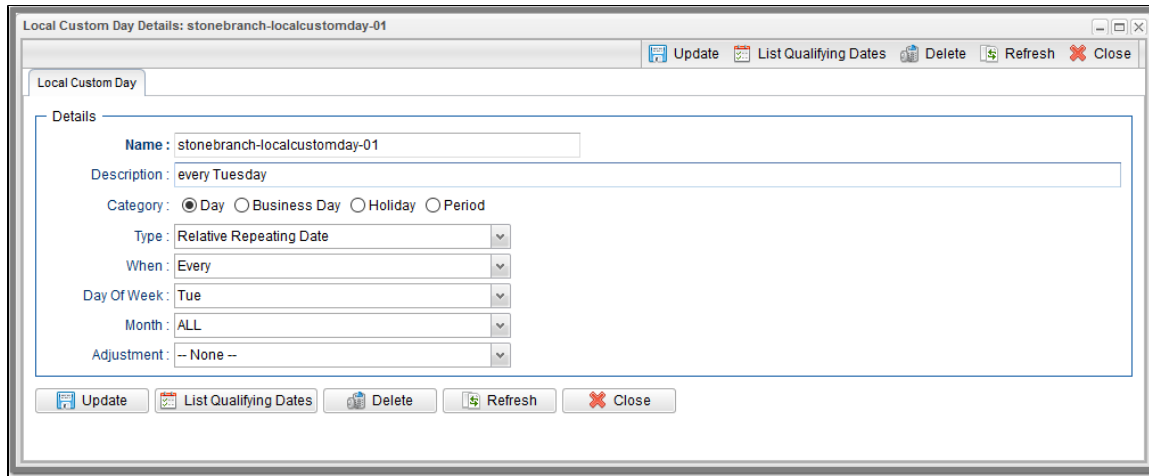
- Use the scroll bar.
- Temporarily [hide the list](#) above the Details.
- Click the **New** button above the list to display a pop-up version of the Details.

Step 5 Click a **Save** button. The Custom Day is added to the database, and all buttons and tabs in the Details are enabled.

Local Custom Day Details

The following Local Custom Day Details is for an existing Local Custom Day.


Depending on the values that you enter / select for these fields, more (or less) fields may display. See the [field descriptions](#), below, for a description of all fields that may display in the Custom Day Details.















For information on how to access additional details - such as [Metadata](#) and complete [database Details](#) - for Local Custom Days (or any type of record), see [Records](#).



Local Custom Day Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Local Custom Day Details.

Field Name	Description
Details	This section contains detailed information about the Custom Day.
Name	Name of this Custom Day.
Calendar	Read only; Calendar for which this Local Custom Day was created. <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> Note This field displays only if the Local Custom Day Details is opened:</p> <ul style="list-style-type: none"> From a reference item. From a report on the Local Custom Day table (ops_local_custom_day). In a tab from the Local Custom Days list. </div>
Description	Description of this Custom Day.

<p>Category</p>	<p>Category of this Custom Day.</p> <p>Options:</p> <table border="1" data-bbox="338 258 1959 496"> <tr> <td>Day</td> <td>This Custom Day defines any day.</td> </tr> <tr> <td>Business Day</td> <td>This Custom Day defines a business day.</td> </tr> <tr> <td>Holiday</td> <td>This Custom Day defines a holiday. Dates flagged as holidays become involved when the user enables Special Restriction on a trigger and selects a situation of On Holiday.</td> </tr> <tr> <td>Period</td> <td>This Custom Day defines a custom period of days (for example: quarters, fiscal year, or 4-5-4 calendar).</td> </tr> </table> <p>You can select a Period Custom Day in:</p> <ul style="list-style-type: none"> • Date Qualifier field for Time Triggers and Composite Trigger Time Components. • Restriction Qualifier field for all triggers (except Manual and Temporary triggers) and all Composite Trigger Components. • Complex Qualifier field for Task Run Criteria. <p>You can select Day, Business Day, and Holiday Custom Days in:</p> <ul style="list-style-type: none"> • Date Noun field for Time triggers and Composite Trigger Time Components. • Restriction Noun field for all triggers (except Manual and Temporary triggers) and all Composite Trigger Components. • Complex Noun field for Task Run Criteria. 	Day	This Custom Day defines any day.	Business Day	This Custom Day defines a business day.	Holiday	This Custom Day defines a holiday. Dates flagged as holidays become involved when the user enables Special Restriction on a trigger and selects a situation of On Holiday.	Period	This Custom Day defines a custom period of days (for example: quarters, fiscal year, or 4-5-4 calendar).
Day	This Custom Day defines any day.								
Business Day	This Custom Day defines a business day.								
Holiday	This Custom Day defines a holiday. Dates flagged as holidays become involved when the user enables Special Restriction on a trigger and selects a situation of On Holiday.								
Period	This Custom Day defines a custom period of days (for example: quarters, fiscal year, or 4-5-4 calendar).								
<p>Type</p>	<p>Type of Custom Day.</p> <p>Options:</p> <ul style="list-style-type: none"> • Single Date - Any one-time date. • Relative Repeating Date - An annual (repeating) date that changes from year to year. For example, the U.S. Thanksgiving falls on the 4th Thursday of November, and is therefore on a different date every year. • Absolute Repeating Date - An annual (repeating) date that does not change from year to year. For example, the Canadian holiday Canada Day falls on July 1st of every year. • List of Dates - The dates are listed below. 								
<p>Date (yyyy-mm-dd)</p>	<p>If Type = Single Date; specific date for this Custom Day (selected from the drop-down lists or the Calendar tool).</p>								

<p>Dates</p>	<p>If Type = List of Dates; multiple specific dates for this Custom Day.</p> <div data-bbox="338 186 957 654" style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> </div> <p>The icons at the top of the list let you perform the following tasks:</p> <table border="1" data-bbox="338 751 1257 1097" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"></td> <td>Add Dates</td> <td>Displays a Date Picker dialog that lets you: <ul style="list-style-type: none"> Add one or more Dates to the list. Clear all Dates from the list. Display a list of selected Dates. </td> </tr> <tr> <td style="text-align: center;"></td> <td>Add item</td> <td>Lets you add a single Date to the list.</td> </tr> <tr> <td style="text-align: center;"></td> <td>Remove selected item</td> <td>Lets you remove one or more selected Dates from the list.</td> </tr> <tr> <td style="text-align: center;"></td> <td>Remove Past Dates</td> <td>Lets you remove all Dates prior to the current Date from the list.</td> </tr> </table>		Add Dates	Displays a Date Picker dialog that lets you: <ul style="list-style-type: none"> Add one or more Dates to the list. Clear all Dates from the list. Display a list of selected Dates. 		Add item	Lets you add a single Date to the list.		Remove selected item	Lets you remove one or more selected Dates from the list.		Remove Past Dates	Lets you remove all Dates prior to the current Date from the list.
	Add Dates	Displays a Date Picker dialog that lets you: <ul style="list-style-type: none"> Add one or more Dates to the list. Clear all Dates from the list. Display a list of selected Dates. 											
	Add item	Lets you add a single Date to the list.											
	Remove selected item	Lets you remove one or more selected Dates from the list.											
	Remove Past Dates	Lets you remove all Dates prior to the current Date from the list.											
<p>When</p>	<p>If Type = Relative Repeating Date; Occurrence of this day in the month. Options: 1st, 2nd, 3rd, 4th, Last, Every. Example: The 4th Thursday of November.</p>												
<p>Day Of Week</p>	<p>If Type = Relative Repeating Date; Day of the week. Example: The 4th Thursday of November.</p>												
<p>Month</p>	<p>If Type = Relative Repeating Date or Absolute Repeating Date; Month of the year, or All. Example: The fourth Thursday of November.</p>												
<p>Day</p>	<p>If Type = Absolute Repeating Date; Day of the month (1 through 31). Example: December 25.</p>												

Adjustment	<p>If Type = Relative Repeating Date; Allows you to adjust the Relative Repeating Date by a less or plus number of Days or Business Days.</p> <p>Options:</p> <ul style="list-style-type: none"> • - - None - - • Less • Plus <p>Default is - - None - -.</p> <div style="background-color: #ffffcc; padding: 5px; margin-top: 10px;">  Note The Adjustment field is not available if the Category is Period. </div>
Adjustment Amount	<p>If Adjustment = Less or Plus; Allows you to specify the number of Days or Business Days to adjust the Relative Repeating Date. Maximum is 366. Default is 1.</p>
Adjustment Type	<p>If Adjustment = Less or Plus; Allows you to specify the type of day by which to adjust the Relative Repeating Date.</p> <p>Options:</p> <ul style="list-style-type: none"> • Day • Business Day <p>Default is Day.</p> <div style="background-color: #ffffcc; padding: 5px; margin-top: 10px;">  Note Business Day is not allowed if Category is Holiday or Business Day. </div>
Metadata	<p>This section contains Metadata information about this record.</p>
UUID	<p>Universally Unique Identifier of this record.</p>
Updated By	<p>Name of the user that last updated this record.</p>
Updated	<p>Date and time that this record was last updated.</p>
Created By	<p>Name of the user that created this record.</p>
Created	<p>Date and time that this record was created.</p>
Buttons	<p>This section identifies the buttons displayed above and below the Custom Day Details that let you perform various actions.</p>
Save	<p>Saves a new task record in the Controller database.</p>
Save & New	<p>Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.</p>
Save & View	<p>Saves a new record in the Controller database and continues to display that record.</p>

New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
List Qualifying Dates	If Period is not enabled and Type is not Single Date; Displays a list of the next 30 dates on which this day occurs (see Generating a List of Qualifying Dates , below).
List Qualifying Periods	If Period is enabled; Displays a list of the next 30 periods in which this day occurs (see Generating a List of Qualifying Periods , below).
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.
Tabs	This section identifies the tabs across the top of the Custom Day Details that provide access to additional information about the task instance.
Calendars	Displays all calendars that use this custom day.
Versions	Stores copies of all previous versions of the current record. See Record Versioning .

Generating a List of Qualifying Dates

The Controller allows you to generate a list of future dates that that a Custom Day (global or Local) will qualify for.



Note

Since Business Days are defined by a Calendar and its Custom Days (if the [Exclude Holidays For Business Days](#) Universal Controller system property is set to true), specifying a Business Day [Adjustment Type](#) requires that the Custom Day belong to at least one Calendar in order to generate a list of qualifying dates.

The following error message will display if you try to generate a list of qualifying dates before adding the Custom Day to a Calendar:

Custom Day has Business Day adjustment type and must be associated with at least one Calendar before List Qualifying Dates can be executed.

Step 1	Click the List Qualifying Dates button in the Custom Day Details.
Step 2	If the Custom Day does not specify a Business Day Adjustment Type , a list of Qualifying Dates for the Custom Day displays.

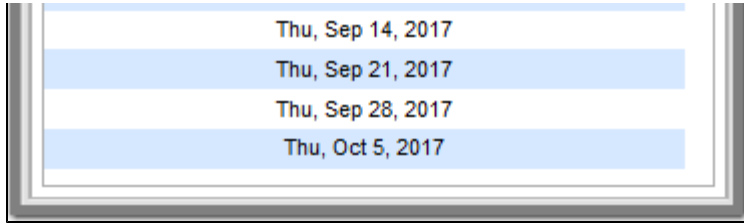


The screenshot shows a window titled "Qualifying Dates" with a close button. The main content area displays the following information:

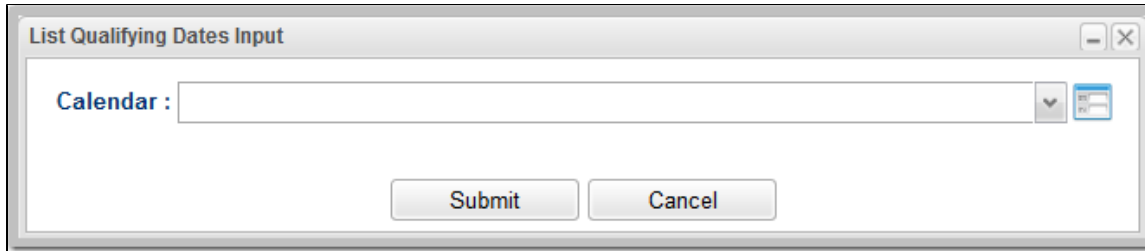
- stonebranch-customday-01**
- Fridays**
- Calendar: stonebranch-calendar-01

Below this is a table with the following data:

Qualifying Dates
Thu, Mar 16, 2017
Thu, Mar 23, 2017
Thu, Mar 30, 2017
Thu, Apr 6, 2017
Thu, Apr 13, 2017
Thu, Apr 20, 2017
Thu, Apr 27, 2017
Thu, May 4, 2017
Thu, May 11, 2017
Thu, May 18, 2017
Thu, May 25, 2017
Thu, Jun 1, 2017
Thu, Jun 8, 2017
Thu, Jun 15, 2017
Thu, Jun 22, 2017
Thu, Jun 29, 2017
Thu, Jul 6, 2017
Thu, Jul 13, 2017
Thu, Jul 20, 2017
Thu, Jul 27, 2017
Thu, Aug 3, 2017
Thu, Aug 10, 2017
Thu, Aug 17, 2017
Thu, Aug 24, 2017
Thu, Aug 31, 2017
Thu, Sep 7, 2017



Step 3 If the Custom Day specifies a Business Day Adjustment Type, the List Qualifying Dates Input dialog displays when you click the List Qualifying Dates button.



Select a Calendar and click **Submit** to see list of Qualifying Dates for the selected Calendar, which is identified at the top of the list.



Note

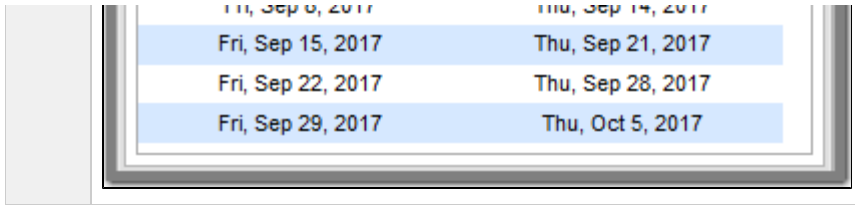
This step does not apply to Local Custom Days, since each Local Custom Day belongs to a single calendar.

Generating a List of Qualifying Periods

Step 1 Click the List Qualifying Period button in the Custom Day Details.

Step 2 A list of Qualifying Periods for the Custom Day displays.

Qualifying Periods	
<u>stonebranch-customday-01</u>	
Fridays	
Qualifying Periods	
Start Date	End Date
Fri, Mar 10, 2017	Thu, Mar 16, 2017
Fri, Mar 17, 2017	Thu, Mar 23, 2017
Fri, Mar 24, 2017	Thu, Mar 30, 2017
Fri, Mar 31, 2017	Thu, Apr 6, 2017
Fri, Apr 7, 2017	Thu, Apr 13, 2017
Fri, Apr 14, 2017	Thu, Apr 20, 2017
Fri, Apr 21, 2017	Thu, Apr 27, 2017
Fri, Apr 28, 2017	Thu, May 4, 2017
Fri, May 5, 2017	Thu, May 11, 2017
Fri, May 12, 2017	Thu, May 18, 2017
Fri, May 19, 2017	Thu, May 25, 2017
Fri, May 26, 2017	Thu, Jun 1, 2017
Fri, Jun 2, 2017	Thu, Jun 8, 2017
Fri, Jun 9, 2017	Thu, Jun 15, 2017
Fri, Jun 16, 2017	Thu, Jun 22, 2017
Fri, Jun 23, 2017	Thu, Jun 29, 2017
Fri, Jun 30, 2017	Thu, Jul 6, 2017
Fri, Jul 7, 2017	Thu, Jul 13, 2017
Fri, Jul 14, 2017	Thu, Jul 20, 2017
Fri, Jul 21, 2017	Thu, Jul 27, 2017
Fri, Jul 28, 2017	Thu, Aug 3, 2017
Fri, Aug 4, 2017	Thu, Aug 10, 2017
Fri, Aug 11, 2017	Thu, Aug 17, 2017
Fri, Aug 18, 2017	Thu, Aug 24, 2017
Fri, Aug 25, 2017	Thu, Aug 31, 2017
Fri, Sep 1, 2017	Thu, Sep 7, 2017
Fri, Sep 8, 2017	Thu, Sep 14, 2017



Assigning a Custom Day to a Calendar

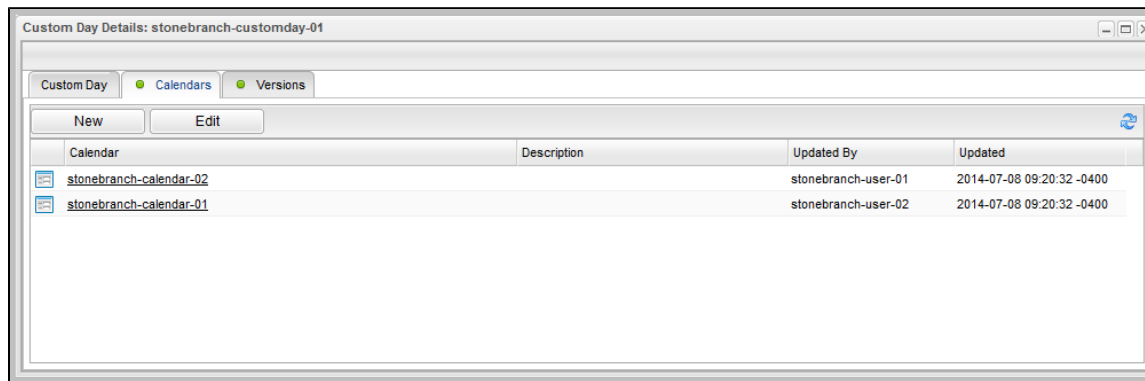
There are two ways to assign a Custom Day to a Calendar from Custom Day Details:

1. [Assign a Custom Day to an Existing Calendar](#)
2. [Create a Calendar and Assign the Custom Day to It](#)

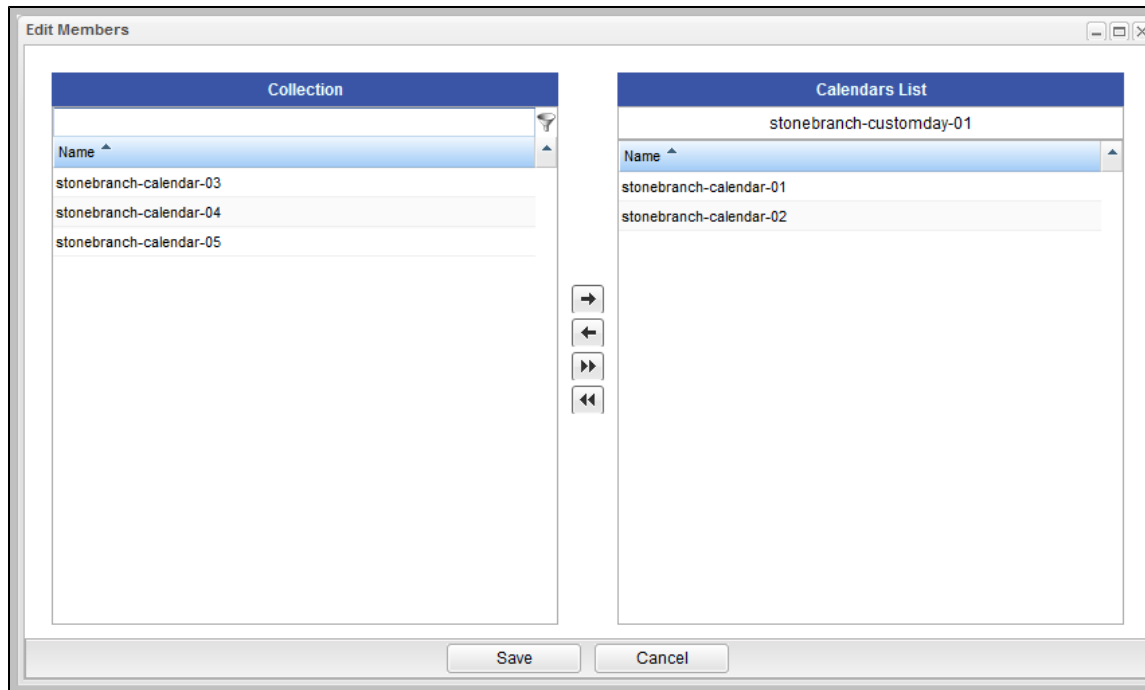
Assign a Custom Day to an Existing Calendar

Step 1 Display the Custom Day Details of the Custom Day that you want to assign to a Calendar.

Step 2 Click the **Calendars** tab. A list of any Calendars to which the Custom Day is assigned displays.



Step 3 Click the **Edit** button. The Edit Members pop-up dialog displays:



- The **Collection** window lists Calendars to which the Custom Day is not assigned.
- The **Calendars List** lists Calendars to which the Custom Day is assigned.

Step 4 To filter the Calendars listed in the Collection window, enter characters in the text field above the **Name** column. Only Calendars containing that sequence of characters will display in the list.

Step 5 To assign the Custom Day to a Calendar, move the Calendar from the **Collection** window to the **Calendars List** window:

1. To move a single Calendar, double-click it or click it once and then click the > arrow.
2. To move multiple Calendars, Ctrl-click them and then click the > arrow.
3. To move all Calendars, click the >> arrow.

To unassign the Custom Day to a Calendar, move the Calendar from the **Calendars List** windows to the **Collection** window:

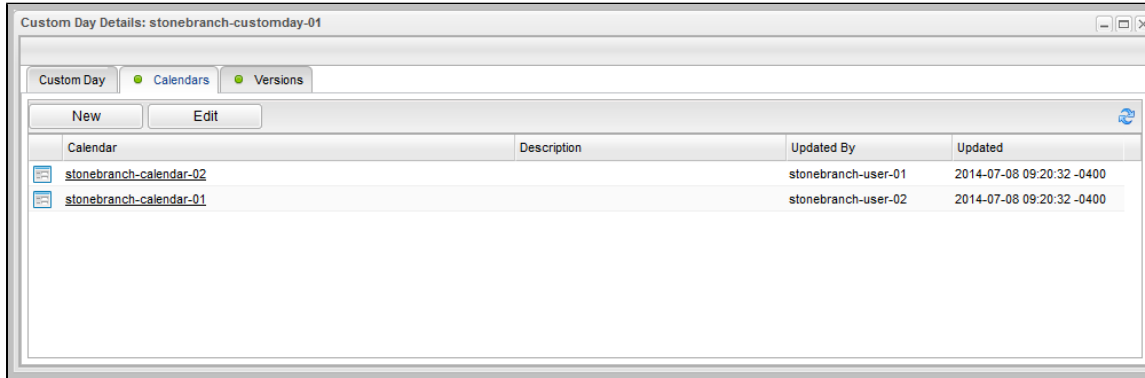
1. To move a single Calendar, double-click it or click it once and then click the < arrow.
2. To move multiple Calendars, Ctrl-click them and then click the < arrow.
3. To move all Calendars, click the << arrow.

Step 6 Click **Save**.

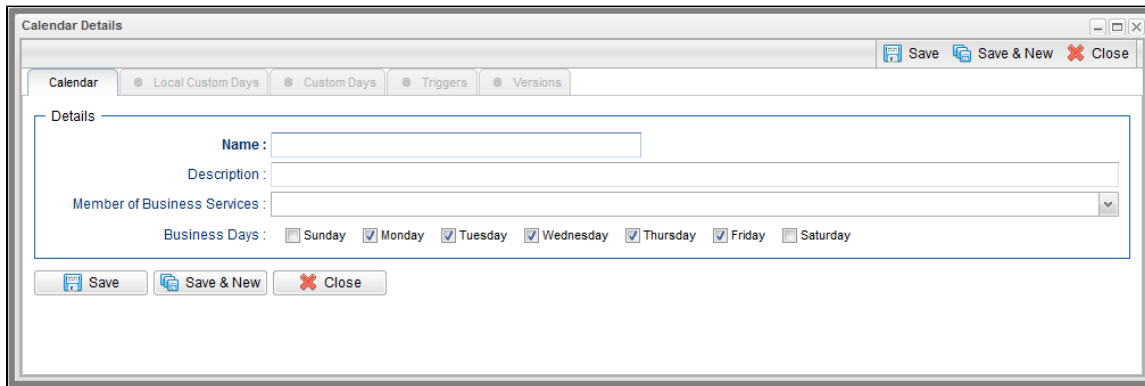
Create a Calendar and Assign the Custom Day to It

Step 1 Display the Custom Day Details of the Custom Day that you want to assign to a new Calendar.

Step 2 Click the **Calendars** tab. The Calendars list displays a list of any Calendars to which the Custom Day already is assigned.



Step 3 Click the **New** button. A Calendar Details pop-up for a new Calendar displays.



Step 4 Enter / select Details for a new Calendar (see [Calendar Details Field Descriptions](#)).

Step 5 Click **Save** to create the Calendar, assign the Custom Day to it, and add it to the list of all Calendars.

Creating Calendars

- Creating a Calendar
 - Calendars List Columns
- Calendar Details
- Calendar Details Field Descriptions
- Assigning a Custom Day to a Calendar
 - Assign an Existing Custom Day to a Calendar
 - Create a Custom Day and Assign It to a Calendar
- Creating a Local Custom Day for a Calendar
- Calendar Preview

Creating a Calendar

Step 1 From the [Automation Center](#) navigation pane, select **Other > Calendars**. The Calendars list displays.

Below the list, Calendar Details for a new Calendar displays.

The screenshot shows the 'Calendars' section of the Universal Controller. At the top, there are tabs for 'Dashboards' and 'Calendars'. Below this is a list of 5 calendars. The first calendar is selected, and its details are shown in a form below the list. The form has tabs for 'Calendar', 'Local Custom Days', 'Custom Days', 'Triggers', and 'Versions'. The 'Calendar' tab is active, showing fields for Name, Description, Member of Business Services, and Business Days (with checkboxes for Sunday through Saturday). There are also 'Save', 'Save & New', and 'New' buttons at the bottom of the form.

Name	Description	Updated By	Updated
stonebranch-calendar-01	Defines our company business days and holidays	ops.admin	2016-05-24 14:29:09 -0400
stonebranch-calendar-02		ops.admin	2017-03-16 13:23:41 -0400
stonebranch-calendar-03		ops.admin	2016-05-24 14:29:09 -0400
stonebranch-calendar-04		ops.admin	2017-06-28 10:32:03 -0400
stonebranch-calendar-05		ops.admin	2016-05-24 14:29:09 -0400



Note

System Default, the default system calendar, defines the work week.

Step 2 Enter / select Details for a new Calendar, 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 Calendar is added to the database, and all buttons and tabs in the Details are enabled.



Note

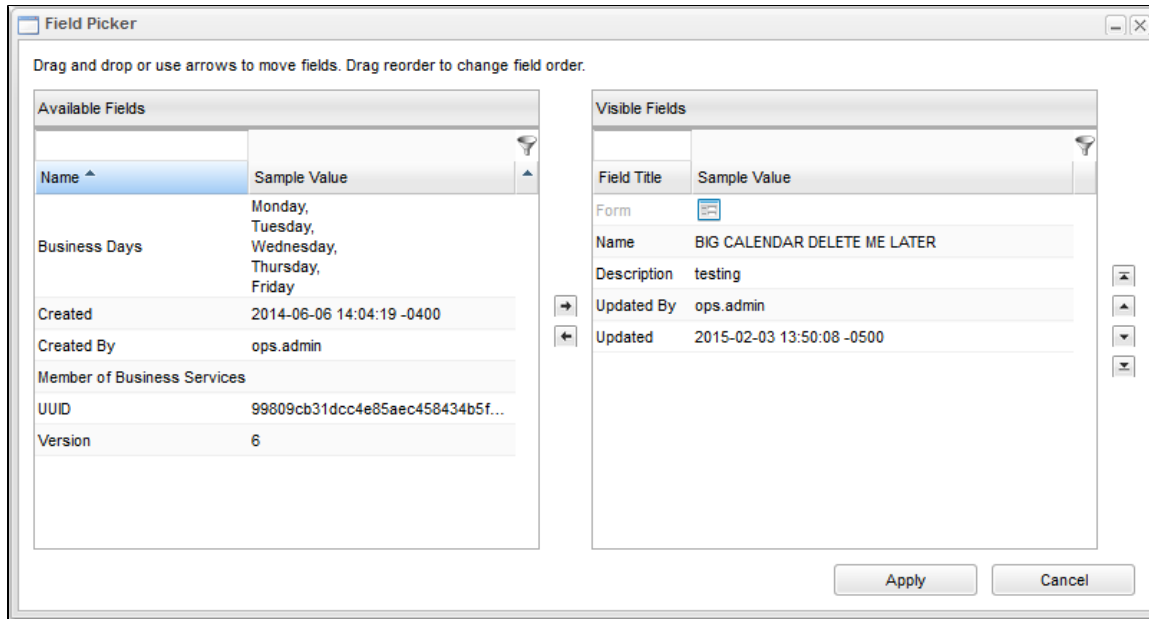
To **open** an existing record on the list, either:

- 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](#)).

Calendars List Columns

The following **Field Picker** pop-up dialog identifies the Calendars list columns that are:

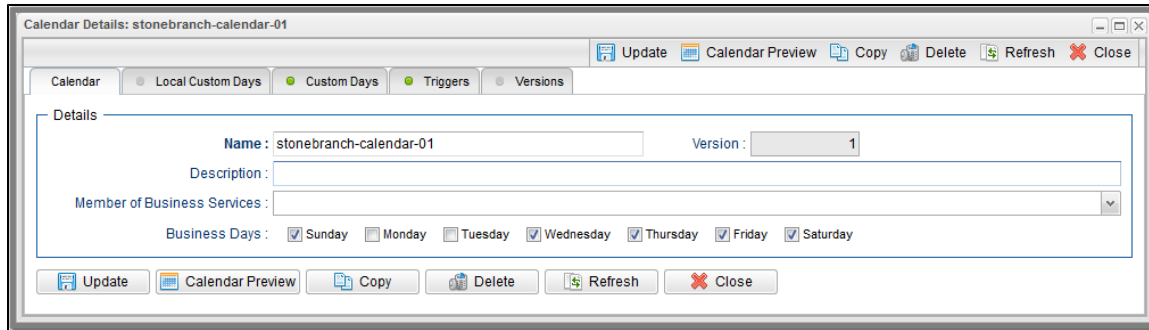
- **Visible** by default.
- **Available** to be made visible.



Calendar Details

The following Calendar Details is for an existing Calendar.

See the [field descriptions](#), below, for a description of all fields that display in the Calendar Details.




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

Calendar Details Field Descriptions

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

Field Name	Description
Details	This section contains detailed information about the Calendar.
Name	Required. Name used within the Controller to identify this calendar. Up to 40 alphanumeric. It is the responsibility of the user to develop a workable naming scheme for calendars.
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to.
Description	User-defined; description for the calendar.
Business Days	User-defined; allows the user to select which days of the week constitute business days for this calendar.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning .
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.

Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new record.
Update	Saves updates to the record.
Calendar Preview	Provides a month-by-month display, for the number of years specified in the Calendar Preview Period In Years Universal Controller system property (starting from the end of the current year), of all Custom Days defined for this calendar.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this calendar.
Update	Saves updates to the record.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task instance.
Local Custom Days	Lists all local custom days associated with this calendar.
Custom Days	Lists all global custom days associated with this calendar. <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> Note The Custom Days tab displays in Calendar Details only if the Custom Day Global Permitted Universal Controller system property is set to true.</p> </div>
Triggers	Lists all triggers that use this calendar.

Versions

Stores copies of all previous versions of the current record. See [Record Versioning](#).

Assigning a Custom Day to a Calendar

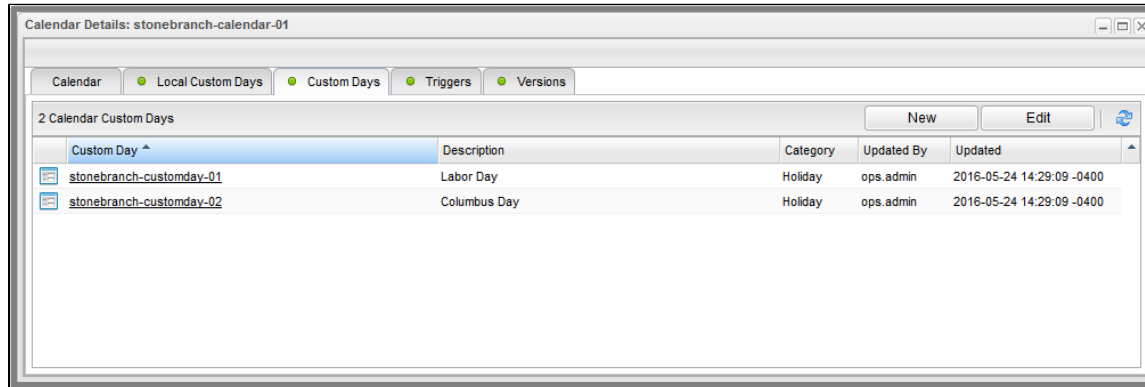
There are two ways to assign a [Custom Day](#) to a Calendar from Calendar Details:

1. [Assign an Existing Custom Day to a Calendar](#)
2. [Create a Custom Day and Assign It to a Calendar](#)

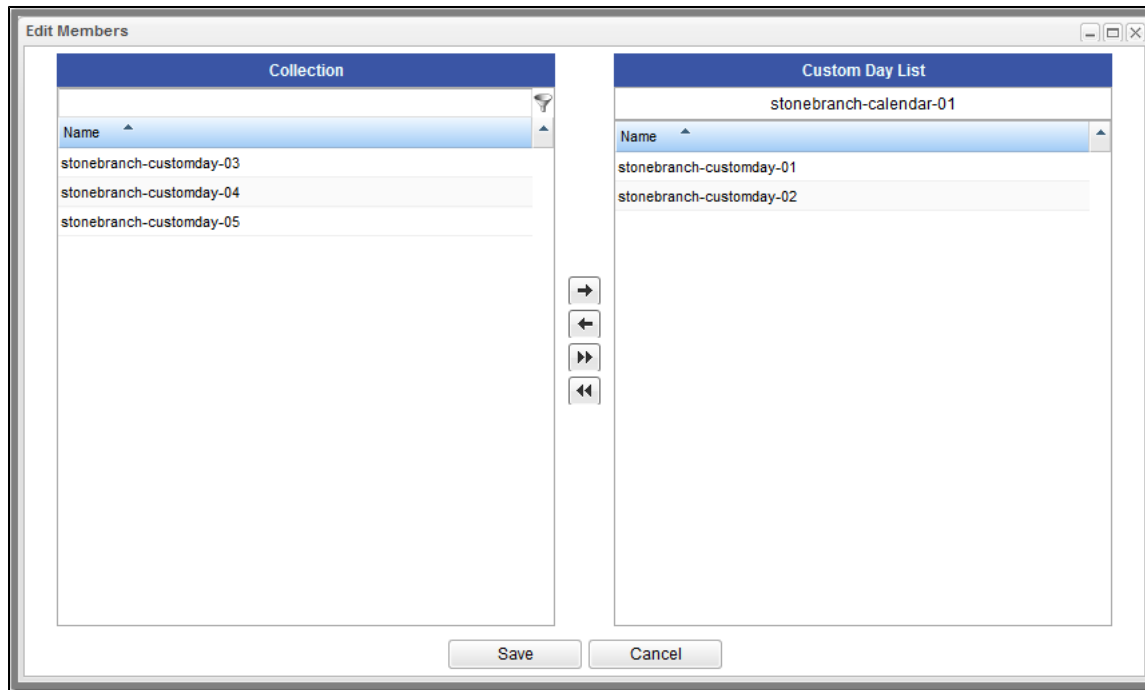
Assign an Existing Custom Day to a Calendar

Step 1 Display the Calendar Details of the calendar to which you want to assign a Custom Day.

Step 2 Click the **Custom Days** tab. The Custom Days list displays a list of any global Custom Days assigned to this Calendar.



Step 3 Click the **Edit** button. The Edit Members pop-up dialog displays:



- The **Collection** window lists Custom Days that are not assigned to this calendar.
- The **Custom Days List** lists Custom Days that are assigned to this calendar.

Step 4 To filter the Custom Days listed in the Collection window, enter characters in the text field above the **Name** column. Only Custom Days containing that sequence of characters will display in the list.

Step 5 To assign a Custom Day to the calendar, move it from the **Collection** window to the **Custom Days List** window:

1. To move a single Custom Day, double-click it or click it once and then click the > arrow.
2. To move multiple Custom Days, Ctrl-click them and then click the > arrow.
3. To move all Custom Days, click the >> arrow.

To unassign a Custom Day to the calendar, move it from the **Custom Days List** windows to the **Collection** window:

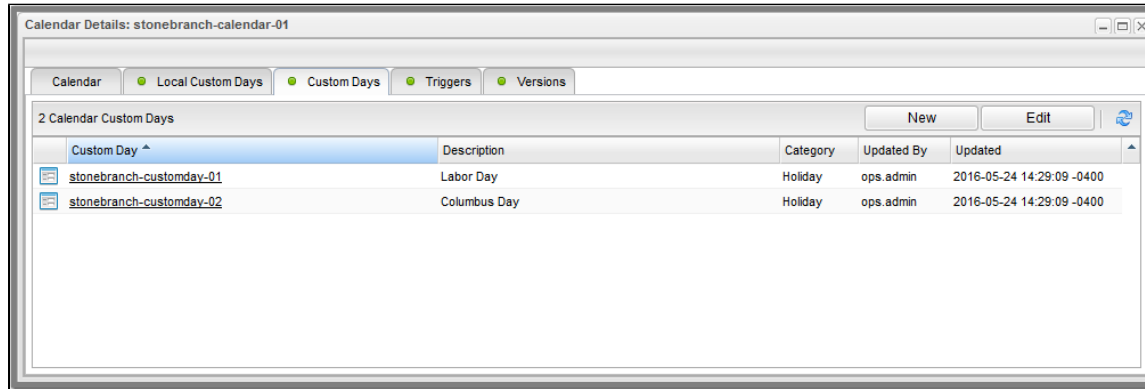
1. To move a single Custom Day, double-click it or click it once and then click the < arrow.
2. To move multiple Custom Days, Ctrl-click them and then click the < arrow.
3. To move all Custom Days, click the << arrow.

Step 6 Click **Save**.

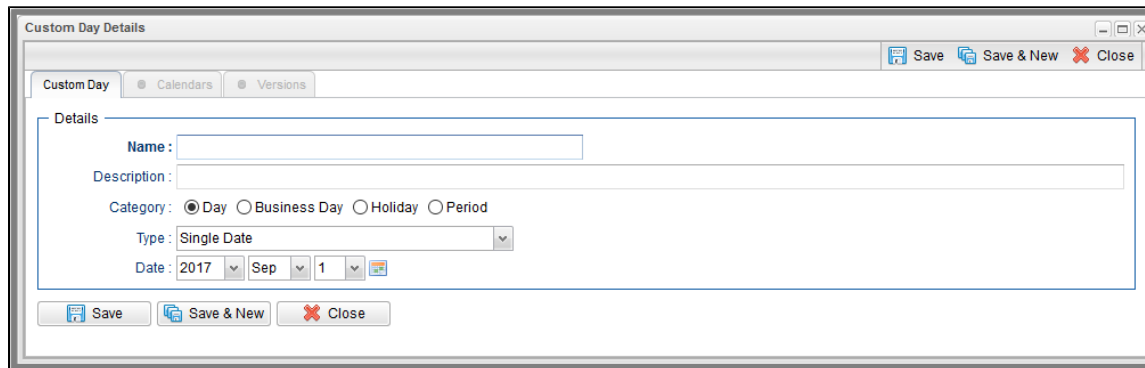
Create a Custom Day and Assign It to a Calendar

Step 1 Display the Calendar Details of the calendar to which you want to assign a global Custom Day.

Step 2 Click the **Custom Days** tab. The Custom Days list displays a list of any global Custom Days assigned to this Calendar.



Step 3 Click the **New** button. A Custom Day Details pop-up for a new global Custom Day displays.



Step 4 Enter / select Details for a new Custom Day (see [Custom Day Details Field Descriptions](#)).

Step 5 Click **Save** to create the Custom Day, assign it to the Calendar, and add it to the list of all Custom Days.



Note

You also can assign a Custom Day to a Calendar from the Custom Day Details for that Custom Day (see [Creating Custom Days](#)).

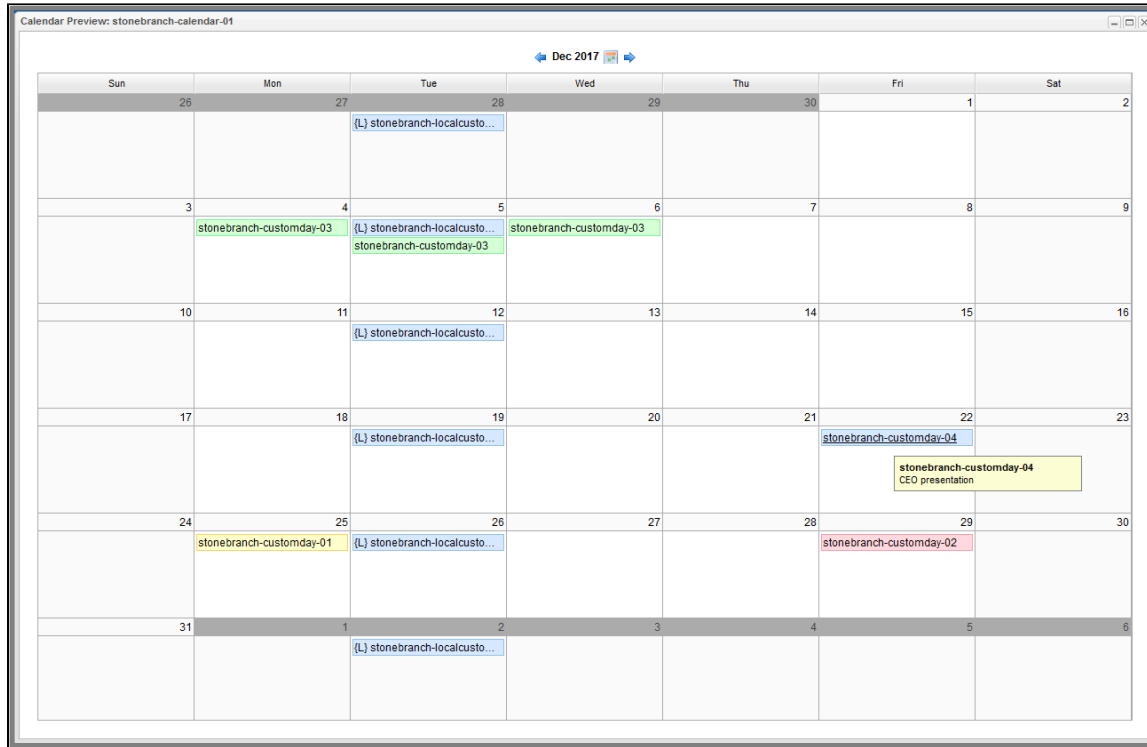
Creating a Local Custom Day for a Calendar

You can create a [Local Custom Day](#) for a Calendar from the Local Custom Days tab in the Calendar Details.

Local Custom Days are assigned automatically to the Calendar for which they were created. You cannot assign a Local Custom Day to any other Calendar.

Calendar Preview

If you click the [Calendar Preview](#) button in the [Calendar Details](#), the Controller provides a month-by-month display, for the number of years specified in the [Calendar Preview Period In Years](#) Universal Controller system property (starting from the end of the current year), of all [Custom Days](#) defined for this calendar.



The Calendar Preview identifies, by color, the four categories of Custom Days:

Name	Color
Day	Custom Day name shaded in blue.
Holidays	Custom Day name shaded in yellow.
Business Days	Custom Day name shaded in red.

Period	Custom Day name shaded in green.
--------	----------------------------------

Local Custom Day names are preceded by {L} (if the [Custom Day Local Indicator Enabled](#) Universal Controller system property is set to true).

The current day is shaded in blue.

To see the description of a Custom Day in the Calendar Preview, hover your cursor over the Custom Day name.

To see Details of a Custom Day in the Calendar Preview, click the Custom Day name.

Copying Calendars

- [Overview](#)
- [Copying One or More Calendars from a Calendars List](#)
- [Copying a Calendar from the Calendar Details](#)
- [Copy Permissions](#)

Overview

You can make copies of all Universal Controller records, including calendars, 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 calendars, **Insert** does not make copies of any Custom Days and Triggers that are associated with the calendar.

The Copy option allows you to make a complete copy of a calendar, including all of its associated records.

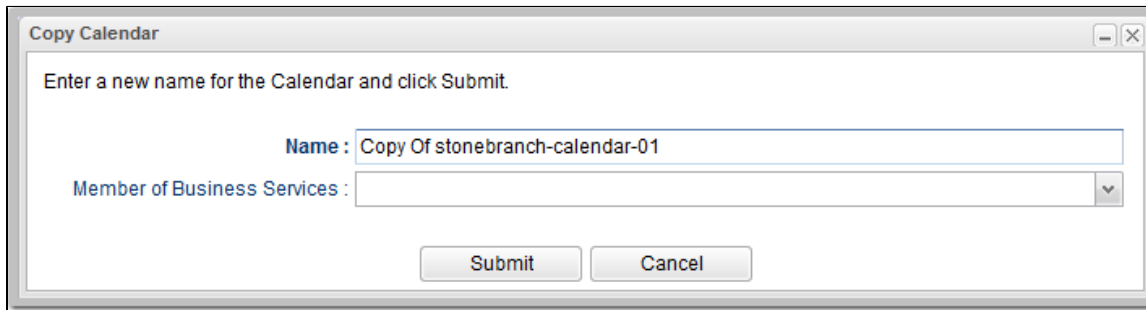
Copying One or More Calendars from a Calendars List

Step 1	From the Automation Center navigation pane, select Other > Calendars . The Calendars list displays.
Step 2	Locate the calendars(s) you want to copy (see Filtering).

Step 3 Copy the calendar(s):

Copy One Calendar

1. Right-click the Calendar **Name** to display an [Action menu](#).
2. Click **Copy**. A Copy Calendar pop-up dialog displays.



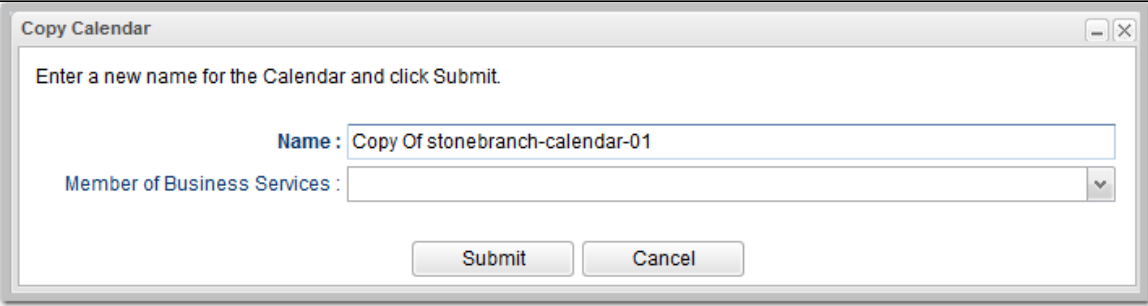
3. Enter a new name for the calendar and, optionally, select any [Business Services](#) that you want the calendar assigned to.
4. Click **Submit** to create a copy of the calendar.

Copy Multiple Calendars

1. Ctrl-Click the calendars you want to copy.
2. Right-click any of the selected calendars to display an [Action menu](#).
3. Click **Copy**.
4. On the Confirmation pop-up that displays, click **OK**. The copied calendars are added to the list, with **Copy of** added as a prefix to the Name for each calendar. If a calendar with that **Copy of** name already exists, a numerical suffix is added to the calendar name.

Copying a Calendar from the Calendar Details

Step 1 Select a calendar from the Calendars list. The Calendar Details for that calendar displays.

<p>Step 2</p>	<p>Either:</p> <ul style="list-style-type: none"> • Click the Copy button. • Right-click the Details to display the Action menu, and then click Copy. <p>A Copy Calendar pop-up dialog displays.</p> 
<p>Step 3</p>	<p>Enter a new name for the calendar and, optionally, select any Business Services that you want the calendar assigned to.</p>
<p>Step 4</p>	<p>Click Submit to create a copy of the calendar.</p>

Copy Permissions

To copy a Calendar, you must have both Read [permission](#) and Copy command permission for the Calendar you are copying, in addition to having Create permission for the copied Calendar.