



stonebranch
WORKLOAD AUTOMATION SIMPLIFIED.

Universal Controller 6.2.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 6.2.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
Cron	Specify dates and times, using Cron syntax, at which a task will be triggered.
Time	Specify dates and times at which a task will be triggered.
Manual	Launch task(s) immediately, while setting or overriding the value of one or more user-defined variables specified in the task(s).
Temporary	Set up a one-time trigger for a task, based on a single date and time.
File Monitor	Trigger one or more tasks based on the creation, deletion, change, existence or non-existence of a file on a particular machine.
Task Monitor	Trigger one or more tasks based on the conditions specified in an associated Task Monitor task.
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 and/or task monitoring events.

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

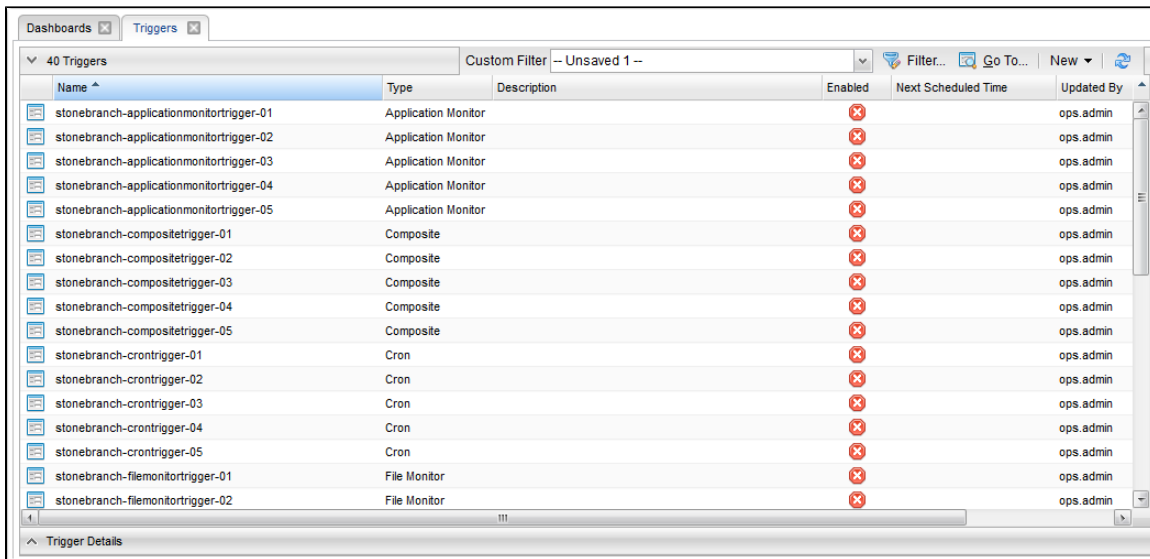
To display a list of all currently defined triggers for all trigger types, from the [Automation Center](#) navigation pane select **Triggers > All Triggers**. The All Triggers list displays.

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.



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 alphanumeric characters. 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 • File • Task 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:

The screenshot shows the 'Task Monitor Triggers' interface. At the top, there are tabs for 'Dashboards' and 'Task Monitor Triggers'. Below this is a navigation pane showing '5 Task Monitor Triggers' with a 'Custom Filter' set to '-- None --'. The main area displays a table of triggers:

Name	Description	Enabled	Task Monitor	Monitor Status	Updated By	Updated
stonebranch-taskmonortrigger-01		<input checked="" type="checkbox"/>	stonebranch-taskmonitor-01		ops.admin	2014-06-24 18:08:54 -0400
stonebranch-taskmonortrigger-02		<input checked="" type="checkbox"/>	stonebranch-taskmonitor-01		ops.admin	2014-06-13 14:47:49 -0400
stonebranch-taskmonortrigger-03		<input checked="" type="checkbox"/>	stonebranch-taskmonitor-01		ops.admin	2014-06-13 14:47:53 -0400
stonebranch-taskmonortrigger-04		<input checked="" type="checkbox"/>	stonebranch-taskmonitor-01		ops.admin	2014-06-13 14:47:58 -0400
stonebranch-taskmonortrigger-05		<input checked="" type="checkbox"/>	stonebranch-taskmonitor-01		ops.admin	2014-06-13 14:48:02 -0400

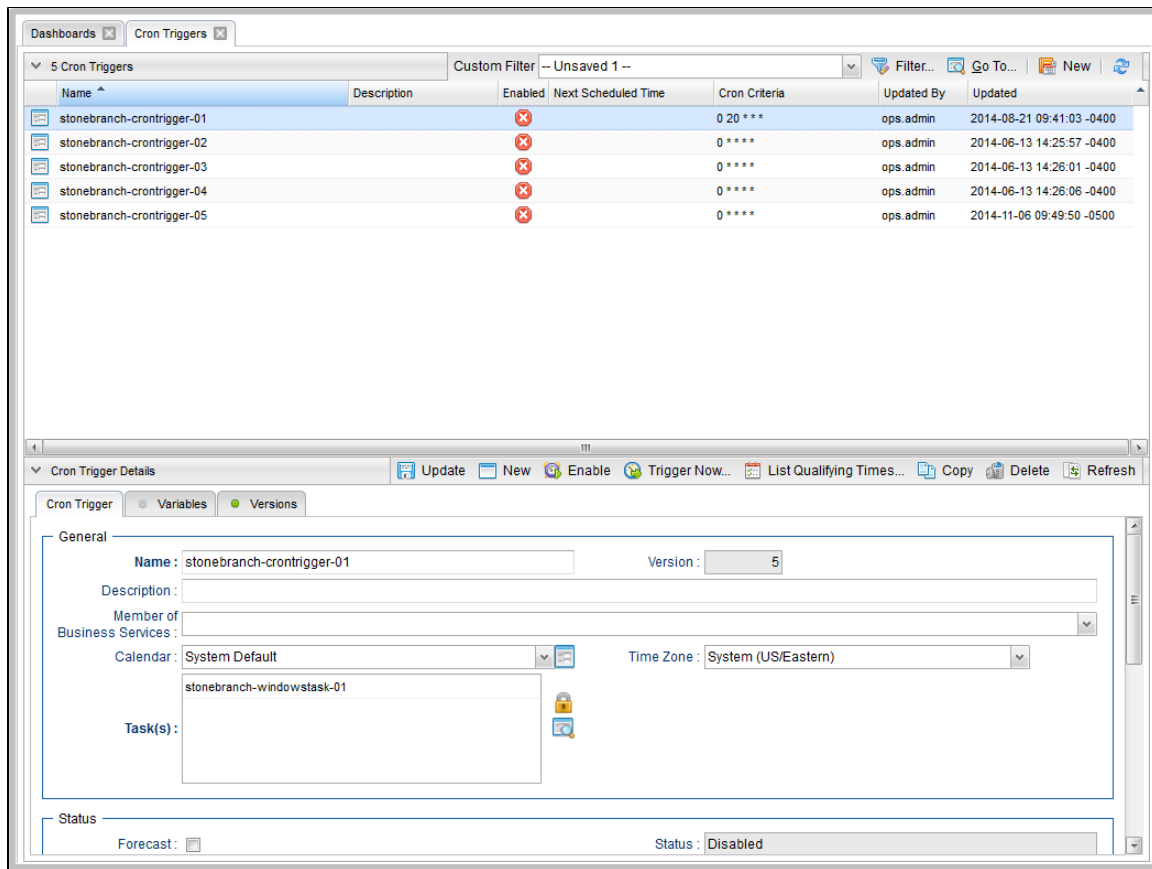
Below the table is a 'Task Monitor Trigger Details' section with tabs for 'Task Monitor Trigger', 'Variables', and 'Versions'. The 'General' tab is active, showing fields for Name, Description, Member of Business Services, Calendar (set to System Default), and Time Zone (set to System (US/Eastern)). A 'Task(s)' section is also present, currently showing 'No items to show.'

<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 a trigger in a Triggers List, Triggers Details below the list displays all currently defined information for that trigger.



For more information on viewing Details of any record type, including tasks, see [Records](#).

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

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. In the example, the timezone is Eastern (EST) and the time changes from 2 a.m. EST to 3 a.m. on March 11. In this case, the 15 minute interval trigger will run at the following times:

```
Sunday, March 11, 2015 00:00:00 EST -0500
Sunday, March 11, 2015 00:15:00 EST -0500
Sunday, March 11, 2015 00:30:00 EST -0500
Sunday, March 11, 2015 00:45:00 EST -0500
Sunday, March 11, 2015 01:00:00 EST -0500
Sunday, March 11, 2015 01:15:00 EST -0500
Sunday, March 11, 2015 01:30:00 EST -0500
Sunday, March 11, 2015 01:45:00 EST -0500
Sunday, March 11, 2015 03:00:00 EDT -0400
Sunday, March 11, 2015 03:15:00 EDT -0400
Sunday, March 11, 2015 03:30:00 EDT -0400
Sunday, March 11, 2015 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 example below. In the example, the timezone is Eastern (EST) and the time changes from 2 a.m. EST to 1 a.m. on November 4. In this case, the 15 minute interval trigger will run at the following times:

```
Sunday, November 04, 2015 00:00:00 EDT -0400
Sunday, November 04, 2015 00:15:00 EDT -0400
Sunday, November 04, 2015 00:30:00 EDT -0400
Sunday, November 04, 2015 00:45:00 EDT -0400
Sunday, November 04, 2015 01:00:00 EDT -0400
Sunday, November 04, 2015 01:15:00 EDT -0400
Sunday, November 04, 2015 01:30:00 EDT -0400
Sunday, November 04, 2015 01:45:00 EDT -0400
Sunday, November 04, 2015 01:00:00 EST -0500
Sunday, November 04, 2015 01:15:00 EST -0500
Sunday, November 04, 2015 01:30:00 EST -0500
Sunday, November 04, 2015 01:45:00 EST -0500
Sunday, November 04, 2015 02:00:00 EST -0500
Sunday, November 04, 2015 02:15:00 EST -0500
Sunday, November 04, 2015 02:30:00 EST -0500
Sunday, November 04, 2015 02:45:00 EST -0500
Sunday, November 04, 2015 03:00:00 EST -0500
Sunday, November 04, 2015 03:15:00 EST -0500
Sunday, November 04, 2015 03:30:00 EST -0500
Sunday, November 04, 2015 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 11, 2012, the time changes from 2 a.m. EST to 3 a.m. On March 11, 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 4, 2012, the time changes from 2 a.m. EDT to 1 a.m. On November 4, the 1:30 a.m. run is repeated, as shown below:

```
Sunday, November 04, 2015 01:30:00 EDT -0400
Sunday, November 04, 2015 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 11, 2012, the time changes from 2 a.m. EST to 3 a.m. EST. On March 11, the 2:30 a.m. run fires at 3:30. The following Sunday and henceforth it runs at 2:30 a.m., as shown:


```
Sunday, March 04, 2015 02:30:00 EST -0500  
Sunday, March 11, 2015 03:30:00 EDT -0400  
Sunday, March 18, 2015 02:30:00 EDT -0400  
Sunday, March 25, 2015 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 4, 2012, the time changes from 2 a.m. EDT to 1 a.m. EST. On November 4, the 1:30 a.m. run fires once, as shown below:

```
Sunday, October 28, 2015 01:30:00 EDT -0400  
Sunday, November 04, 2015 01:30:00 EST -0500  
Sunday, November 11, 2015 01:30:00 EST -0500  
Sunday, November 18, 2015 01:30:00 EST -0500  
Sunday, November 25, 2015 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

- Overview
- Cron Syntax
 - Cron Fields
 - Cron Special Characters
 - Cron Criteria Examples
- Creating a Cron Trigger
 - Cron Trigger Details
 - Cron Trigger Details Field Descriptions
- 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	*, /, -

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. (You also can click the **New** button to display Cron Trigger Details for a new Cron trigger.)

The screenshot shows the 'Cron Triggers' list in the Automation Center. The list contains five entries, all with the name 'stonebranch-crontrigger-01' through '05'. The first entry is enabled (green checkmark) and has a next scheduled time of '2014-10-16 20:00:00 -0400'. The other four entries are disabled (red X). The Cron Criteria for all are '0 * * * *'. The updated by user is 'ops.admin' and the updated time is '2014-06-13 14:26:06 -0400'.

Below the list is the 'Cron Trigger Details' form. The 'General' tab is active. The form includes fields for Name, Description, Member of Business Services, Calendar (set to System Default), Time Zone (set to System (US/Eastern)), and Task(s). The Task(s) field is currently empty, displaying 'No items to show.' There are also 'Save' and 'New' buttons at the top right of the details form.

Step 2	<p>Enter/select Details for a new Cron 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 temporarily hide the list.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note If you view Cron Trigger Details for an existing Cron trigger by clicking a trigger in the list, and then want to create a new Cron trigger, you must click the New button that displays above and below the Details.</p> </div>
Step 3	Click the 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.

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.

The screenshot shows a web-based interface for editing a Cron trigger. The title bar reads "Cron Trigger Details: stonebranch-crontrigger-01". At the top, there are tabs for "Cron Trigger", "Variables", and "Versions". Below the tabs are several action buttons: Update, Enable, Trigger Now..., List Qualifying Times..., Copy, Delete, Refresh, and Close. The main content area is divided into sections:

- General:** Includes fields for Name (stonebranch-crontrigger-01), Version (5), Description, Member of Business Services, Calendar (System Default), Time Zone (System (US/Eastern)), Task(s) (stonebranch-windowstask-01), and Execution User (stonebranch-user-01).
- Status:** Includes Forecast, Skip Count (0), Skip Trigger if Active, and Simulate (System Default). The Status is set to Disabled.
- Cron Details:** Includes Minutes (0), Hours (20), Day of Month (*), Month (*), Day of Week (*), and Cron Criteria (0 20 ***).
- Restrictions:** Includes a Special Restriction checkbox.

 At the bottom, there is another set of action buttons: Update, Enable, Trigger Now..., List Qualifying Times..., Copy, Delete, Refresh, and 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 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 .
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	If enabled, the Controller calculates the date and time when this trigger will be satisfied for the next number days, as specified in the Forecast Period In Days Universal Controller system property. The Controller writes the forecasting entries to the Forecasts List .
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.
Skip Trigger if Active	User-defined; allows you to specify that the Controller should skip the next run of the specified task(s) if the previous run has not gone to a Complete status (that is, it 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 .
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.
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)
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

Complex Restriction	<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>
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
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>
Buttons	<p>This section identifies the buttons displayed above and below the Trigger Details that let you perform various actions.</p>
Save	<p>Saves a new task record in the Controller database.</p>
Update	<p>Saves updates to the record.</p>
New	<p>Displays empty (except for default values) Details for creating a new trigger.</p>
Enable	<p>Activates this trigger and writes your User ID to the Enabled By field.</p>
Disable	<p>Deactivates this trigger.</p>

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.
List Qualifying Times	Opens a new browser tab and displays a list of the next 20 dates and times this trigger will be satisfied.
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 variables associated with this 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 this trigger will trigger the specified task. Click the **List Qualifying Times** button to display a list of the next 20 dates and times.

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:

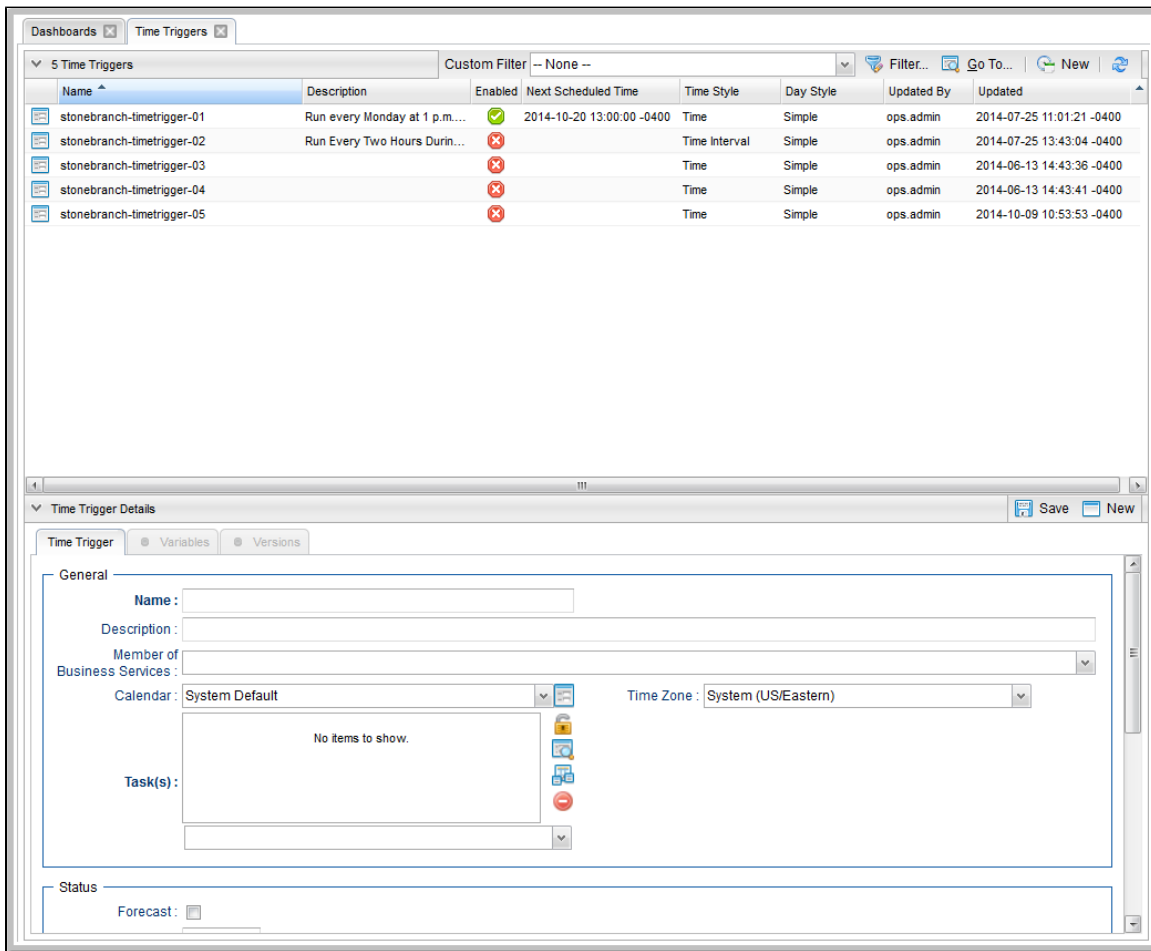
- Simple date and times, such as "every weekday at 12:00 a.m."
- Specific dates and times, such as "March 15 at 12:00 a.m."
- A series of dates and times, such as "every Friday at every hour."
- A mixture of specific dates/times and a series, such as "every Monday at 9 a.m."
- Complex dates and times, 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. (You also can click the **New** button to display Time Trigger Details for a new Time trigger.)



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 temporarily [hide the list](#).

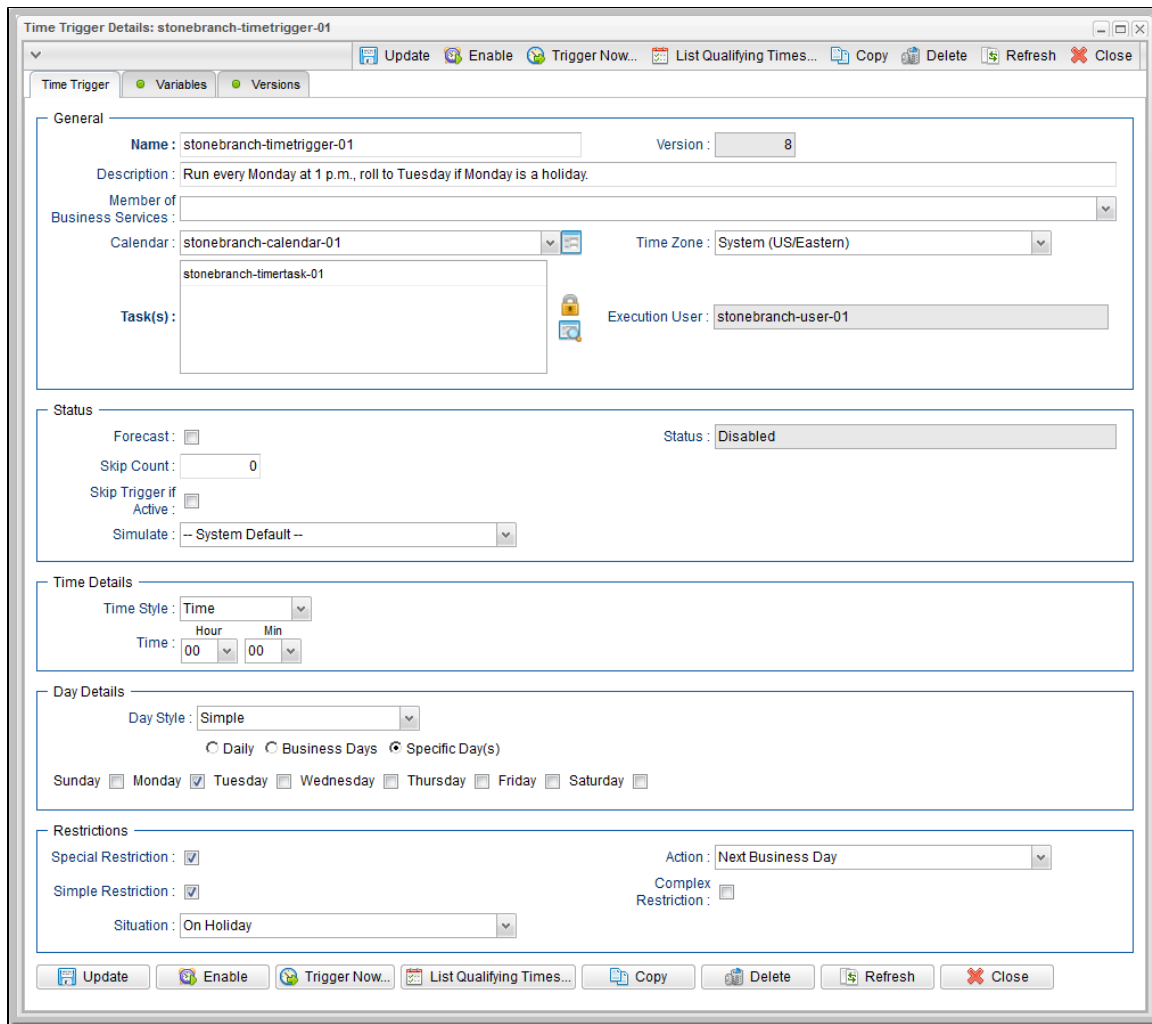
Note
 If you view [Time Trigger Details](#) for an existing Time trigger by clicking a trigger in the list, and then want to create a new Time trigger, you must click the **New** button that displays above and below the Details.

Step 3 Click the **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.

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 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	<p>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.</p>
Task(s)	<p>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.</p>
Execution User	<p>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.</p>
Status	<p>This section contains information about the current status of the trigger.</p>
Forecast	<p>If enabled, the Controller calculates the date and time when this trigger will be satisfied for the next number 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>
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>
Skip Trigger if Active	<p>User-defined; allows you to specify that the Controller should skip the next run of the specified task(s) if the previous run has not gone to a Complete status (that is, it is still active).</p>
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>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.
Time Details	<p>This section contains assorted detailed information about the trigger.</p>

<p>Time Style</p>	<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.
<p>Time</p>	<p>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>
<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 data-bbox="321 684 1446 816" style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <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>
<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).

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.
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, 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>
Adjustment Amount	<p>If Day Adjustment = Less or More, allows you to specify the number of Days or Business Days to adjust your date setting.</p>
Adjustment Type	<p>If Day Adjustment = Less or More, 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> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note 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 (see Restrict Times).</p> </div>
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>
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>

<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>
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.
Update	Saves updates to the record.
New	Displays empty (except for default values) Details for creating a new trigger.
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.
List Qualifying Times	Opens a new browser tab and displays a list of the next 20 dates and times this trigger will be satisfied.
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 variables associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning .

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.

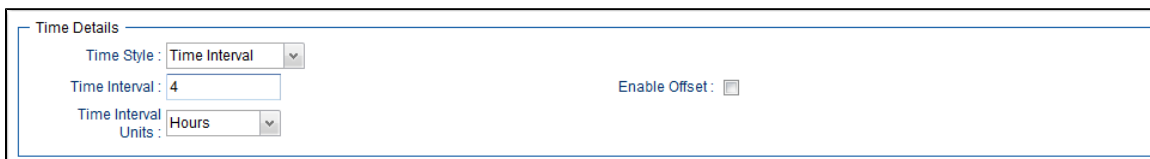
 **Note**
See [Daylight Saving Time](#) for information on how it impacts time intervals.

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:

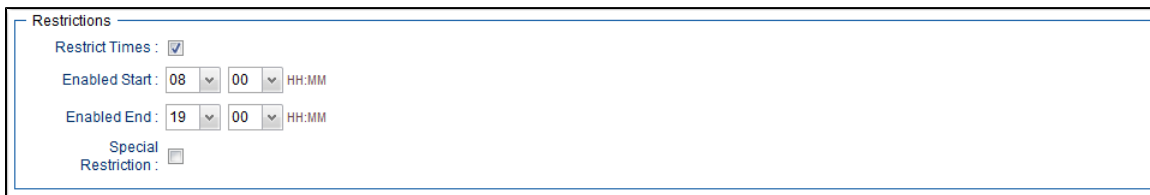
Restrict Times

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: 08:00 HH:MM

Enabled End: 19:00 HH:MM

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. Click the [List Qualifying Times](#) button to display a list of the next 20 dates and times.

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.

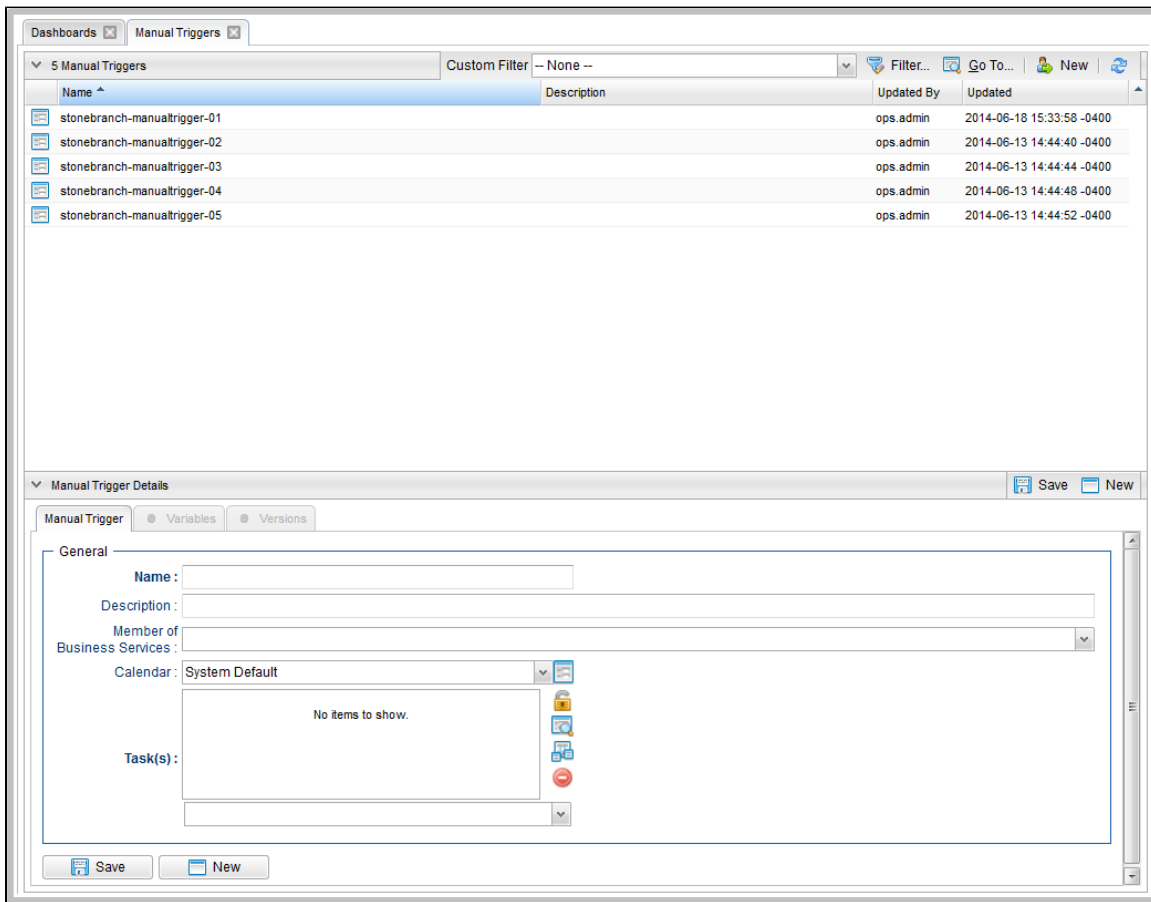
You can use the Manual trigger to set values to pre-existing variables or create new variables. The variable values you enter here override all others. However, the change in value only persists while this launched task instance(s) is running. Future executions of the task(s), unless they are launched 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. (You also can click the **New** button to display Manual Trigger Details for a new Manual trigger.)



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 temporarily [hide the list](#).



Note

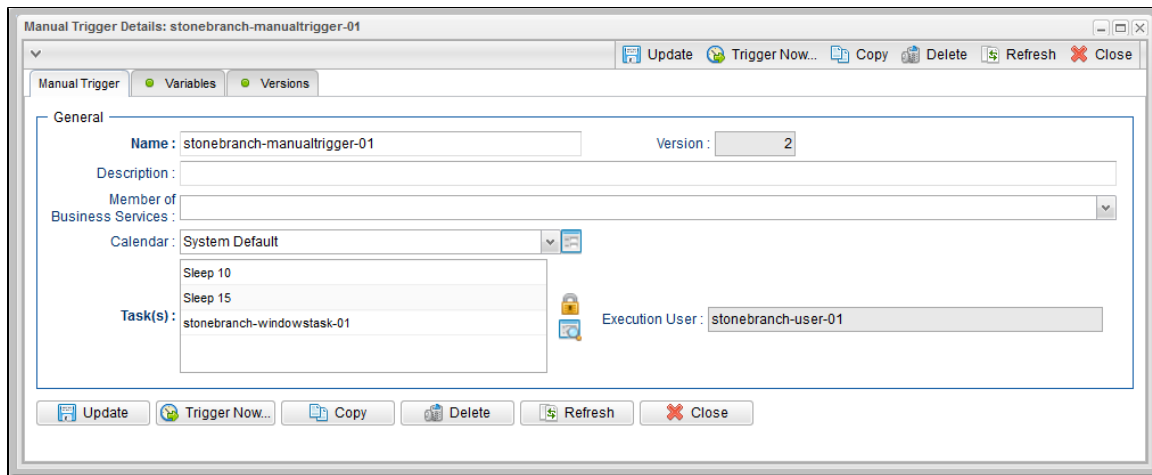
If you view [Manual Trigger Details](#) for an existing Manual trigger, by clicking a trigger in the list, and then want to create a new Manual trigger, you must click the **New** button that displays above and below the Details.

Step 3 Click the **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.

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.
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 .
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.
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.
Update	Saves updates to the record.
New	Displays empty (except for default values) Details for creating a new 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.
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 variables associated with this 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. (You also can click the **New** button to display Temporary Trigger Details for a new Temporary trigger.)

The screenshot shows the 'Temporary Triggers' section of the Universal Controller. At the top, there are tabs for 'Dashboards' and 'Temporary Triggers'. Below this is a table with 5 entries. The table has columns for Name, Description, Enabled, Next Scheduled Time, Date, Time, Updated By, and Updated. All entries are disabled (indicated by a red 'X' icon) and scheduled for 2014-06-13 at 00:00:00 -0400. The 'Updated By' field for all entries is 'ops.admin'. Below the table is a 'Temporary Trigger Details' form. The form has tabs for 'Temporary 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 'System (US/Eastern)'). There is also a 'Task(s)' field which is currently empty, displaying 'No items to show.'.

Name	Description	Enabled	Next Scheduled Time	Date	Time	Updated By	Updated
stonebranch-temporarytrigger-01		✗	2014-06-13 00:00:00 -0400	2014-06-13	00:00	ops.admin	2014-10-16 10:50:00 -0400
stonebranch-temporarytrigger-02		✗	2014-06-13 00:00:00 -0400	2014-06-13	00:00	ops.admin	2014-06-13 14:45:36 -0400
stonebranch-temporarytrigger-03		✗	2014-06-13 00:00:00 -0400	2014-06-13	00:00	ops.admin	2014-06-13 14:45:41 -0400
stonebranch-temporarytrigger-04		✗	2014-06-13 00:00:00 -0400	2014-06-13	00:00	ops.admin	2014-06-13 14:45:45 -0400
stonebranch-temporarytrigger-05		✗	2014-06-13 00:00:00 -0400	2014-06-13	00:00	ops.admin	2014-06-13 14:45:49 -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 temporarily hide the list.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> Note If you view Temporary Trigger Details for an existing Temporary trigger by clicking a trigger in the list, and then want to create a new Temporary trigger, you must click the New button that displays above and below the Details.</p> </div>
Step 3	Click the 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.

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.

The screenshot shows a web-based interface for editing a temporary trigger. The title bar reads 'Temporary Trigger Details: stonebranch-temporarytrigger-01'. At the top, there are tabs for 'Temporary Trigger', 'Variables', and 'Versions'. Below the tabs are several sections:

- General:** Includes fields for Name (stonebranch-temporarytrigger-01), Version (2), Description, Member of Business Services (stonebranchbusinessservice 01), Calendar (stonebranch-calendar-01), Task(s) (stonebranch-windowstask-01), Time Zone (System (US/Eastern)), and Execution User (stonebranch-user-01).
- Status:** Includes Forecast (checkbox), Skip Count (0), Skip Trigger if Active (checkbox), and Simulate (System Default).
- Temporary Details:** Includes Date (2015 Jun 13) and Time (00:00).

Buttons for Update, Enable, Trigger Now..., Copy, Delete, Refresh, and Close are located at the top and bottom of the window.

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 .
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	If enabled, the Controller calculates the date and time when this trigger will be satisfied for the next number days, as specified in the Forecast Period In Days Universal Controller system property. The Controller writes the forecasting entries to the Forecasts List .
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.
Skip Trigger if Active	User-defined; allows you to specify that the Controller should skip the next run of the specified task(s) if the previous run has not gone to a Complete status (that is, it 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 .

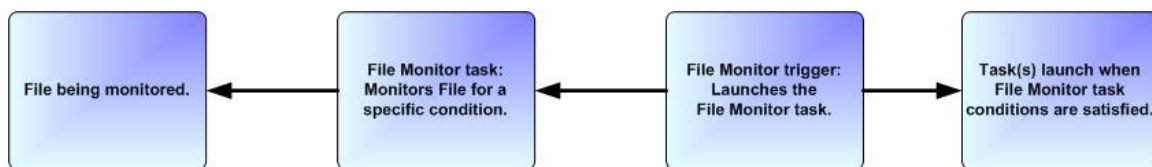
Simulate	<p>Optional. Enables the override of the Enable Trigger Simulation Universal Controller system property specification for whether or not to simulate the launching of tasks when triggers are eligible to fire. (If simulation is enabled, only the scheduled launch of the task by the trigger is inhibited.)</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.
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.
Update	Saves updates to the record.
New	Displays empty (except for default values) Details for creating a new trigger.
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.
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 variables associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning .

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.



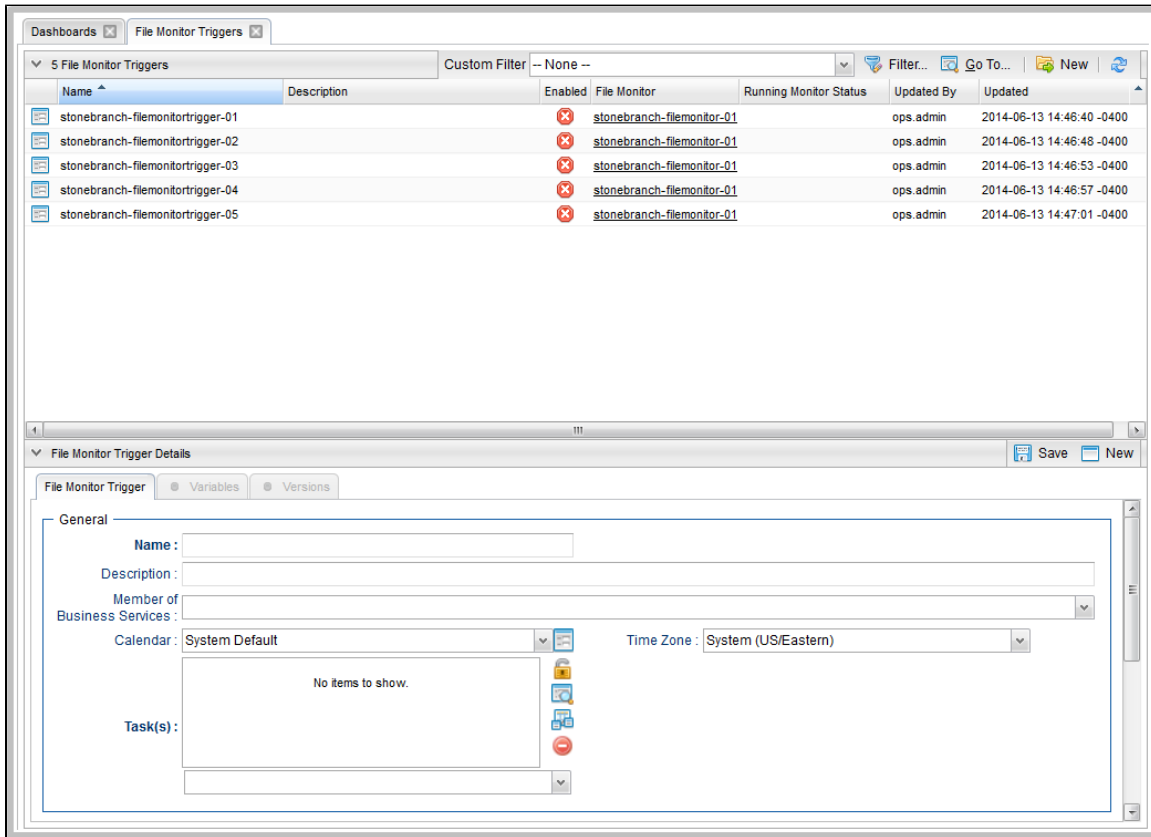
Note

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. (You also can click the **New** button to display File Monitor Trigger Details for a new File Monitor trigger.)



Step 2 Enter/select Details for a new File 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 temporarily [hide the list](#).



Note

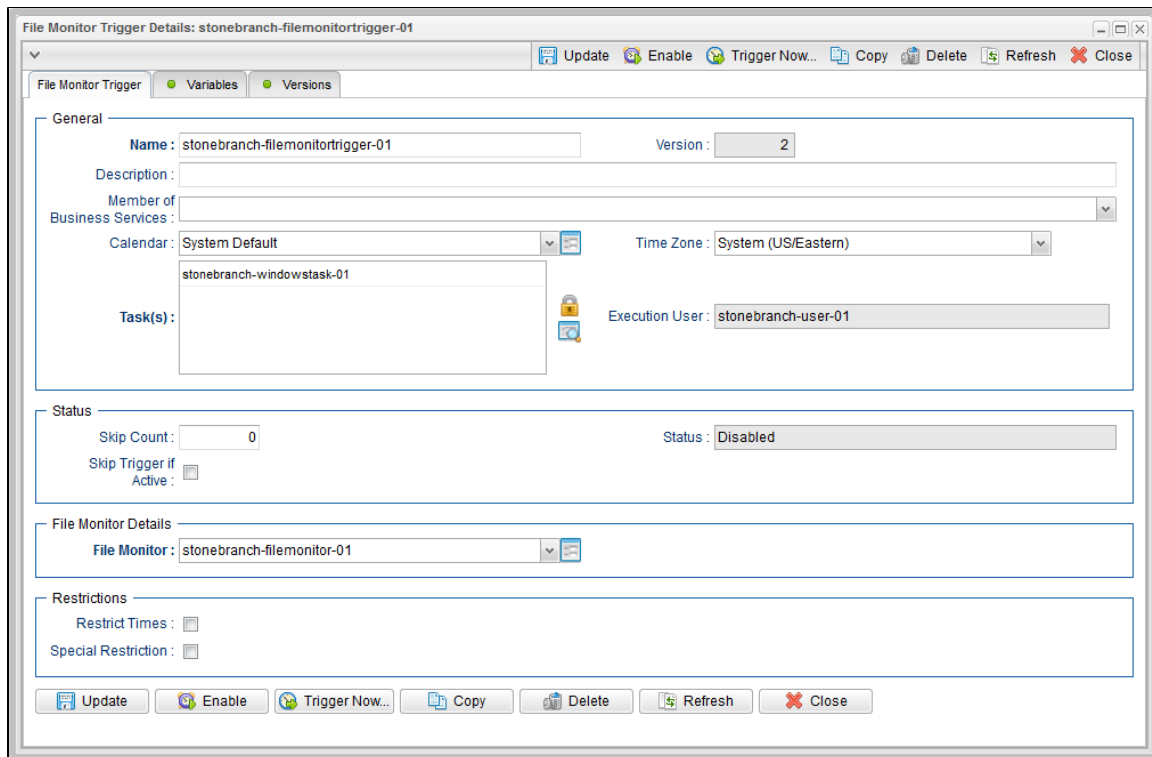
If you view [File Monitor Trigger Details](#) for an existing File Monitor trigger by clicking a trigger in the list, and then want to create a new File Monitor trigger, you must click the **New** button that displays above and below the Details.

Step 3 Click the **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.

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 .
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.
Skip Trigger if Active	User-defined; allows you to specify that the Controller should skip the next run of the specified task(s) if the previous run has not gone to a Complete status (that is, it 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.
File Monitor Details	This section contains assorted detailed information about the trigger.
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 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.
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.

<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>

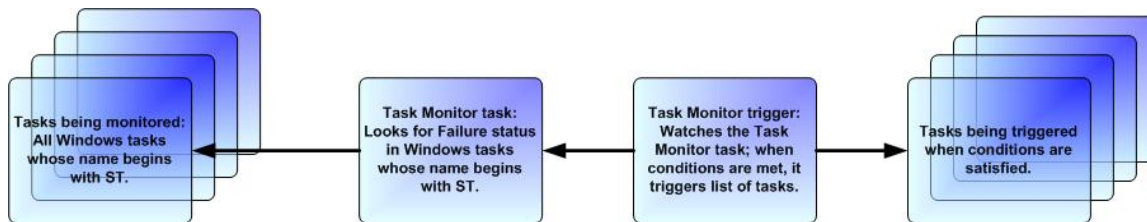
Restriction Qualifier	<p>If Complex Restriction is enabled, the period you are selecting from.</p> <p>Options:</p> <ul style="list-style-type: none"> • Month • Year • January through December • Custom period <p>Example: The last quarter of the year.</p>
Buttons	This section identifies the buttons displayed above and below the Trigger Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Update	Saves updates to the record.
New	Displays empty (except for default values) Details for creating a new trigger.
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.
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 variables associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning .

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.



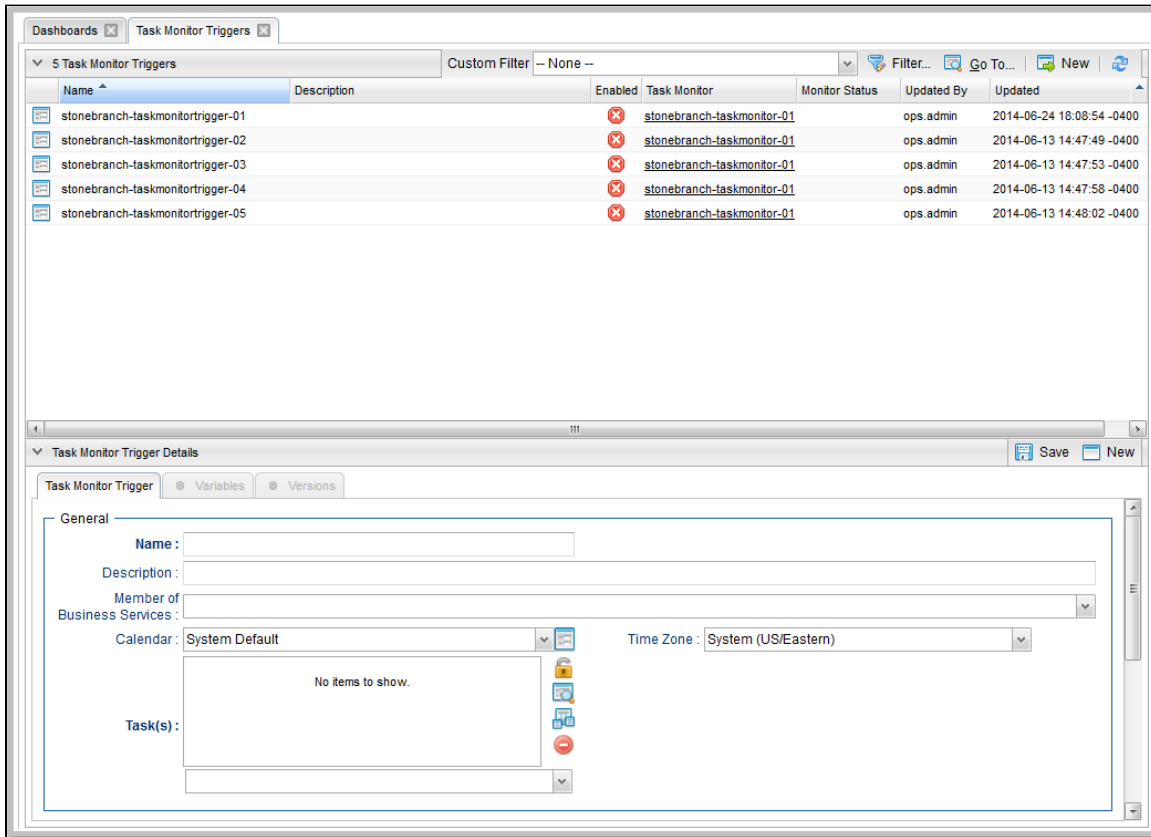
Note

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. (You also can click the **New** button to display Task Monitor Trigger Details for a new Task Monitor trigger.)



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 temporarily [hide the list](#).



Note

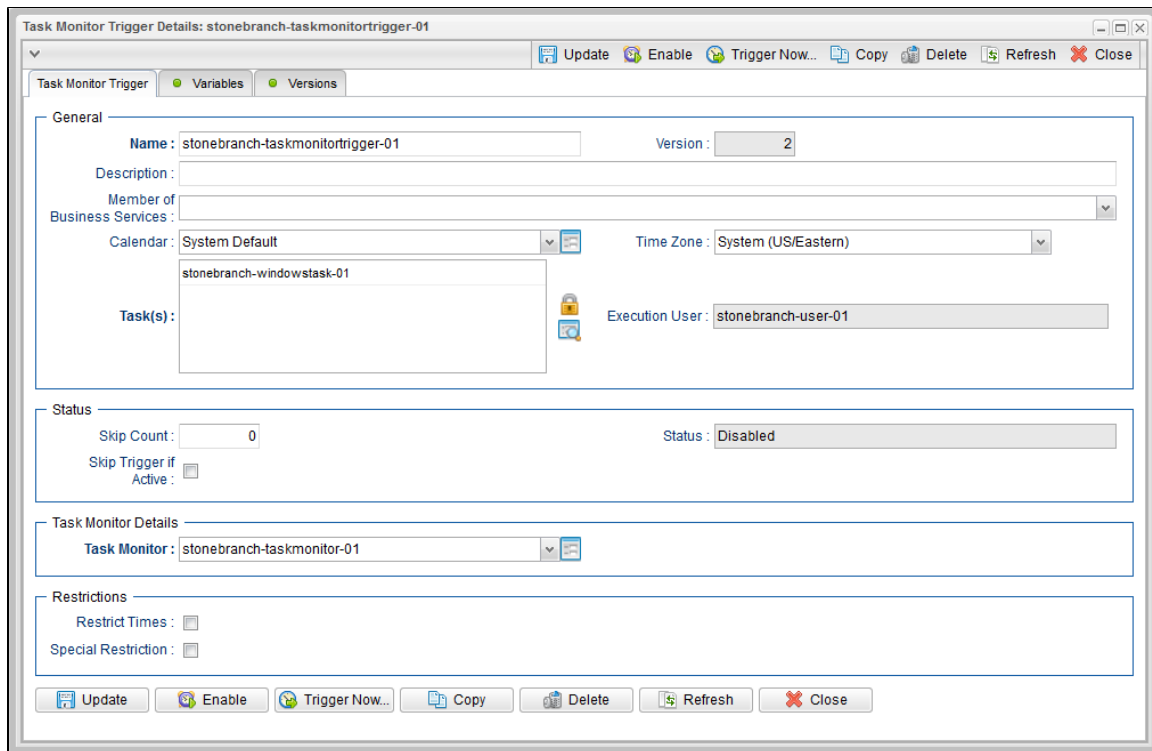
If you view [Task Monitor Trigger Details](#) for an existing Task Monitor trigger by clicking a trigger in the list, and then want to create a new Task Monitor trigger, you must click the **New** button that displays above and below the Details.

Step 3 Click the **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.

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 .
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.
Skip Trigger if Active	User-defined; allows you to specify that the Controller should skip the next run of the specified task(s) if the previous run has not gone to a Complete status (that is, it 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.
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.
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.

<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>
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.
Update	Saves updates to the record.
New	Displays empty (except for default values) Details for creating a new trigger.
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.
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 variables associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning .

Composite Trigger

- [Overview](#)
- [Built-In Variables](#)
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Overview

The Composite trigger consists of Time, File Monitor, and Task Monitor components - which function like [Time](#), [File Monitor](#), and [Task 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)

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 and tasks being monitored by its File Monitor and Task 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, 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

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. (You also can click the **New** button to display Composite Trigger Details for a new Composite trigger.)

The screenshot shows the 'Composite Triggers' dashboard. At the top, there are tabs for 'Dashboards' and 'Composite Triggers'. Below this is a list of 5 composite triggers. Each row includes a name, description, enabled status (indicated by a red 'X'), time limit, units, queue depth, updated by, and updated date. Below the list is a 'Composite Trigger Details' window with tabs for 'General', 'Components', 'Variables', and 'Versions'. The 'General' tab is active, showing fields for Name, Description, Member of, Business Services, Calendar (set to System Default), Time Zone (set to System), and Task(s). A 'Status' field is also visible at the bottom.

Name	Description	Enabled	Time Limit	Time Limit Units	Queue Depth	Updated By	Updated
stonebranch-compositetrigger-01		✗		Minutes	100	ops.admin	2015-06-15 15:18:57 -0400
stonebranch-compositetrigger-02		✗		Minutes	100	ops.admin	2015-06-15 15:20:05 -0400
stonebranch-compositetrigger-03		✗		Minutes	100	ops.admin	2015-06-15 15:20:15 -0400
stonebranch-compositetrigger-04		✗		Minutes	100	ops.admin	2015-06-15 15:20:25 -0400
stonebranch-compositetrigger-05		✗		Minutes	100	ops.admin	2015-06-15 15:20:42 -0400

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 temporarily hide the list.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> Note If you view Composite Trigger Details for an existing Composite trigger by clicking a trigger in the list, and then want to create a new Composite trigger, you must click the New button that displays above and below the Details.</p> </div>
Step 3	Click the 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.

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.

The screenshot shows the 'Composite Trigger Details' window for 'stonebranch-compositetrigger-01'. The interface includes several sections:

- General:** Name (stonebranch-compositetrigger-01), Version (12), Description, Member of Business Services, Calendar (System Default), Task(s) (stonebranch-linuxunixtask-01, stonebranch-linuxunixtask-02), Time Zone (System), Execution User (stonebranch-user-01).
- Status:** Skip Count (0), Skip Trigger if Active (checkbox), Status (Enabled), Enabled By (ops.admin).
- Composite Details:** Time Limit (5), Time Limit Units (Days), Queue Depth (100).
- Restrictions:** Restrict Times (checked), Enabled Start (01:00), Enabled End (00:00), Special Restriction (checked), Simple Restriction (checked), Situation (On Holiday), Restriction Mode (Or), Action (Do Not Trigger), Complex Restriction (checked), Restriction Adjective (Every), Restriction Noun (Day), Restriction Qualifier (Year).

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	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 .
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.
Skip Trigger if Active	User-defined; allows you to specify that the Controller should skip the next run of the specified task(s) if the previous run has not gone to a Complete status (that is, it 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.
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.
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)
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
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.

<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>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>
<p>Update</p>	<p>Saves updates to the record.</p>
<p>New</p>	<p>Displays empty (except for default values) Details for creating a new trigger.</p>
<p>Enable</p>	<p>Activates this trigger and writes your User ID to the Enabled By field.</p>
<p>Disable</p>	<p>Deactivates this trigger.</p>



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.
List Component Events	For enabled triggers; Displays a new tab that lists all components of the Composite trigger and a maintains 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	<p>Allows you to define the following components:</p> <ul style="list-style-type: none"> • Single Time Trigger component • One or more Task Monitor trigger components • One or more File Monitor trigger components
Variables	Lists all variables associated with this 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 alphanumerics.
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.

<p>Event Match Type</p>	<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: 10px; margin-top: 10px;"> <p> Note You can select Multiple only if a Time Limit is specified in the Composite Trigger Details.</p> </div>
<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>Next Scheduled Time</p>	<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>
<p>Time Details</p>	<p>This section contains assorted detailed information about the component.</p>
<p>Time Style</p>	<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.
<p>Time</p>	<p>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>
<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

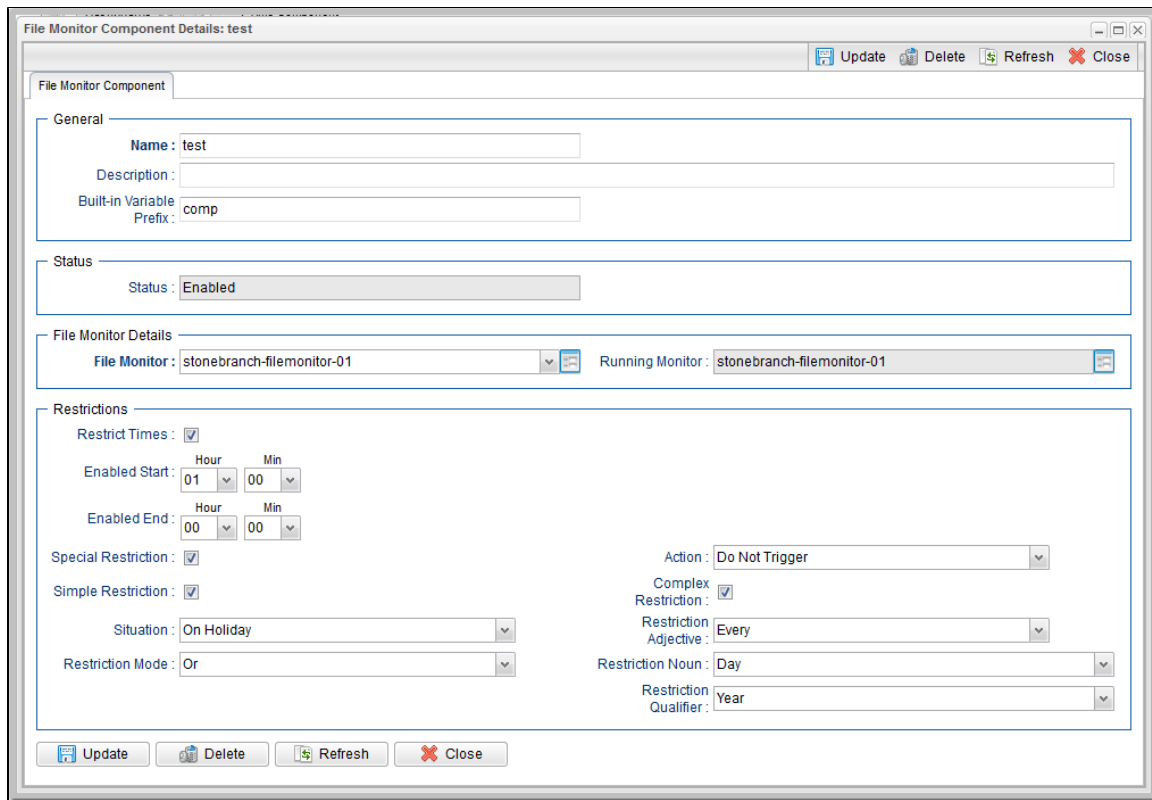
<p>Enable Offset</p>	<p>If Time Style = Time Interval, allows you to define (in the Initial Time Offset field) a starting time, in minutes offset from the hour, for the trigger to run.</p> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> Note Enable Offset and Restrict Times 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>
<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
<p>Nth Amount</p>	<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>If Day Adjustment = Less or More, allows you to specify the number of Days or Business Days to adjust your date setting.</p>
Adjustment Type	<p>If Day Adjustment = Less or More, 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 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; border: 1px solid #ccc;"> <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>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>
Buttons	This section identifies the buttons displayed above and below the Component Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Update	Saves updates to the record.
List Qualifying Times	Opens a new browser tab and displays a list of the next 20 dates and times this trigger will be satisfied.
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.

File Monitor Component



File Monitor Component Details Field Descriptions

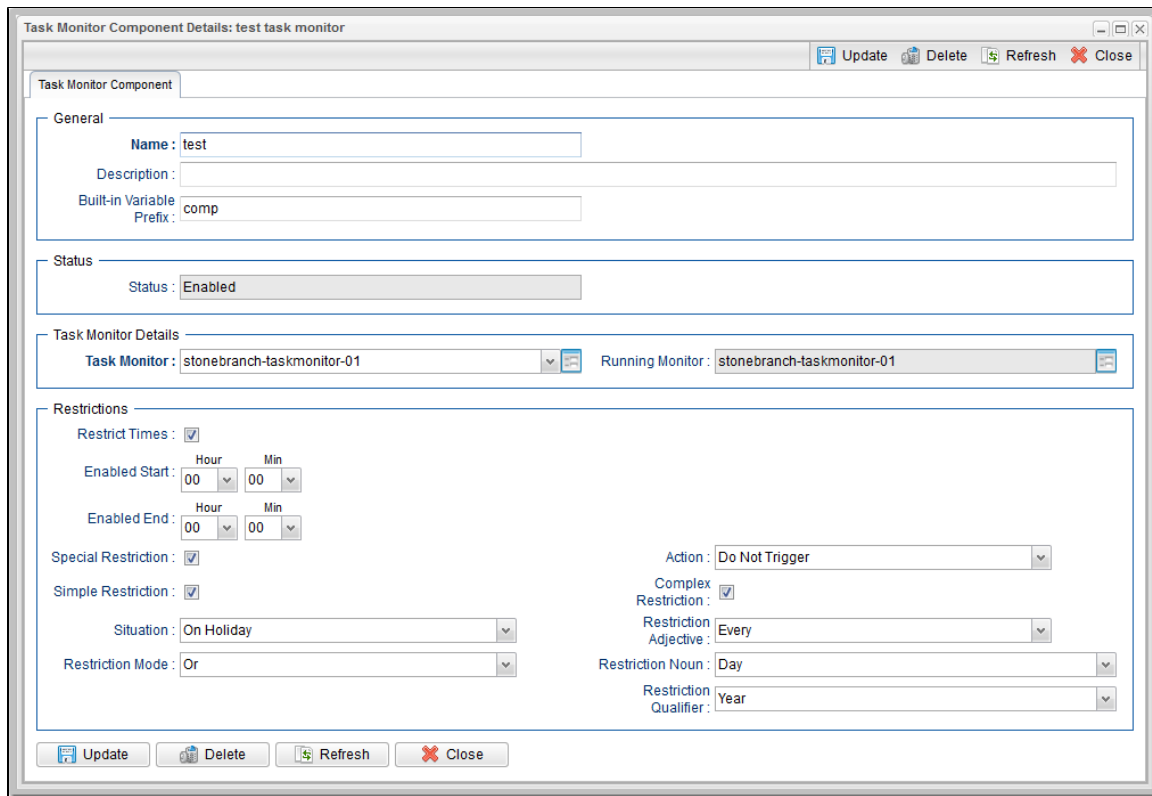
The following table describes the fields and buttons that display in the File Monitor Component Details.

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	If Simple Restriction is enabled, allows you to select the situation that causes the system to initiate the action specified in the Action field. Options: <ul style="list-style-type: none"> • On Non Business Day • On Holiday
Action	If Special Restriction is enabled, allows you to select an action to take on a non-business day or holiday (see Situation field). Options: <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 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.
Restriction Mode	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). Options: <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>Buttons</p>	<p>This section identifies the buttons displayed above and below the Component Details that let you perform various actions.</p>
<p>Save</p>	<p>Saves a new task record in the Controller database.</p>
<p>Update</p>	<p>Saves updates to the record.</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 component.</p>

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.
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 <i>Enable</i> / <i>Disable</i> 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
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 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.
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>Buttons</p>	<p>This section identifies the buttons displayed above and below the Component Details that let you perform various actions.</p>
<p>Save</p>	<p>Saves a new task record in the Controller database.</p>
<p>Update</p>	<p>Saves updates to the record.</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 component.</p>

Enabling and Disabling Triggers

- [Introduction](#)
- [Enabling/Disabling One or More Triggers](#)
- [Enabling/Disabling a Single Trigger](#)
- [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 One or More 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 . The Status field in the Status section of the Trigger Details will change from Enabled to Disabled / Disabled to Enabled.

Enabling/Disabling a Single Trigger

Step 1	Display either the Triggers list for the appropriate trigger type or the Active Triggers list.
Step 2	Either: <ul style="list-style-type: none"> • Right-click the trigger you want to enable or disable to display an Action menu, and then click Enable or Disable. • Displays the Details of the trigger you want to enable/disable.
Step 3	Display the trigger you want to enable or disable, and then click the Enable or Disable button.

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.

Copying Triggers

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

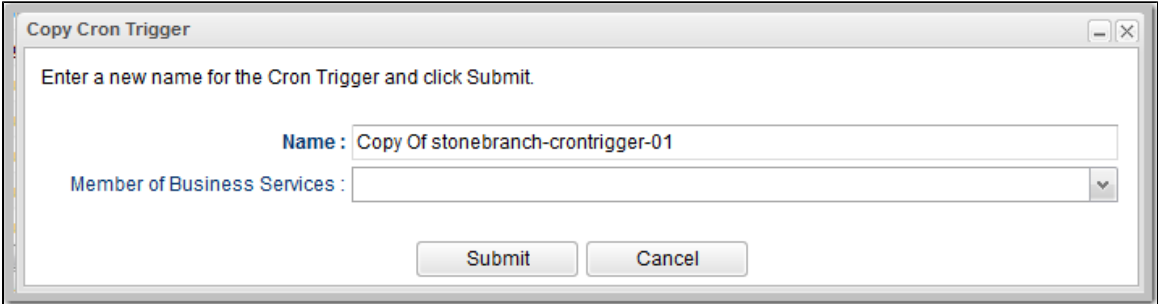
Overview

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 other records that may be attached to the trigger, such as Notifications, Actions, and Variables.

The Copy Trigger option allows you to make a complete copy of a trigger, including all of its associated records, such as variables and notes. It does not copy referenced records, such as virtual resources, but retains the relationship to these records for the copied trigger.

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	<p>Copy the trigger(s):</p> <p>Copy One Trigger</p> <ol style="list-style-type: none"> 1. Right-click the Trigger Name. 2. On the Action menu, select Copy. A Copy Trigger pop-up dialog displays. <div style="text-align: center; margin: 10px 0;">  </div> <ol style="list-style-type: none"> 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. <p>Copy Multiple Triggers</p> <ol style="list-style-type: none"> 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.
---------------	--

Step 2

Either:

- Click the **Copy** button.
- Right-click the Details to display the [Action menu](#), and then click **Copy**.

A Copy Trigger pop-up dialog displays.

Copy Cron Trigger

Enter a new name for the Cron Trigger and click Submit.

Name : Copy Of stonebranch-crontrigger-01

Member of Business Services : [Dropdown]

Submit Cancel

Step 3

Enter a new name for the trigger and, optionally, select any [Business Services](#) that you want the trigger assigned to.

Step 4

Click **Submit** to create a copy of the 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.

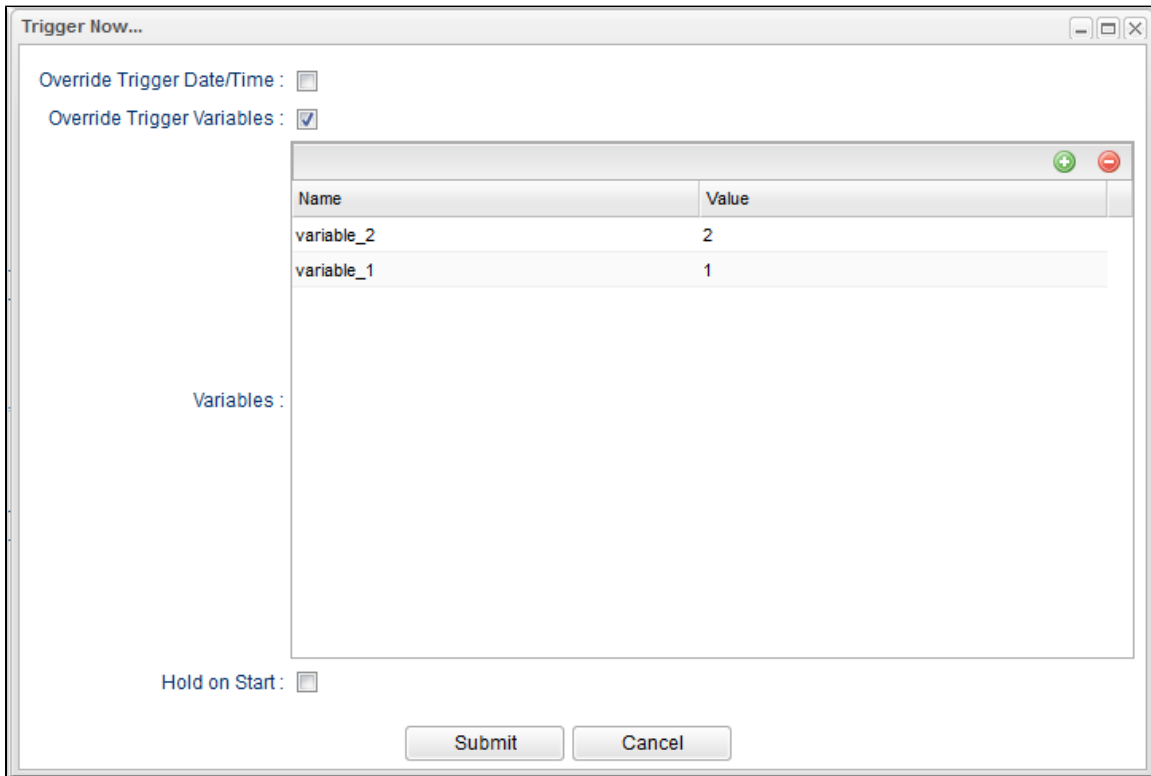
Variables set with the **Trigger Now... pop-up** method override any variables specified with the **Variables tab** method, but only for that run of the task(s).


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 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).



 **Note**
 Additionally, you also 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 5 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 6 If you want to put the task instances in held status when the tasks specified in the trigger are started, select **Hold on Start**.

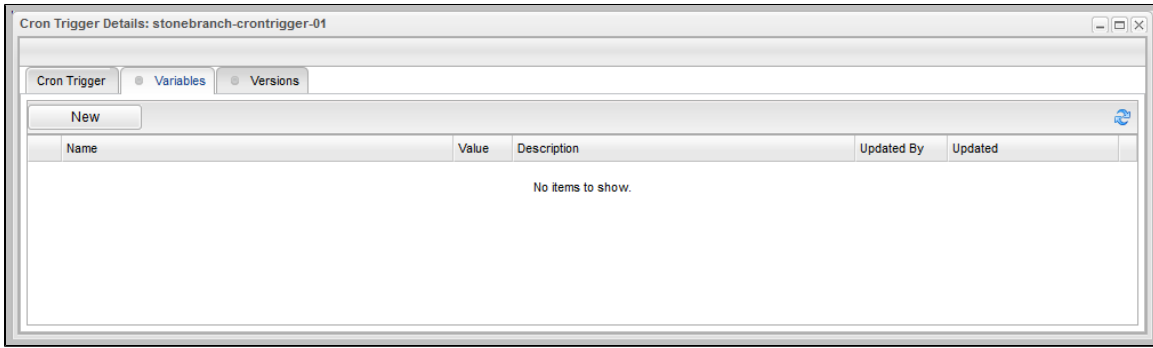
Step 7 Click **Submit** to launch the tasks named in the trigger. The variable information in the list is used where referenced in the tasks. After launching the tasks, the Controller deletes the contents of the list.

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.

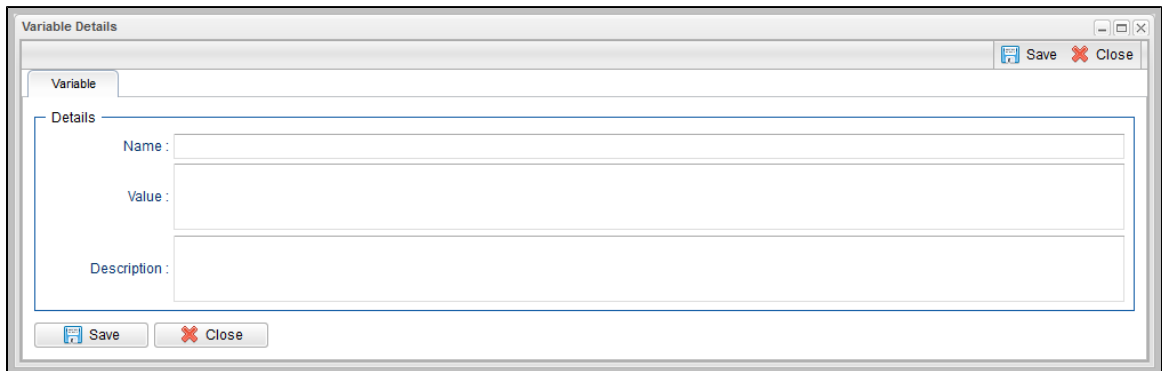
Step 2 Open the trigger whose tasks you want to launch. The Trigger Details for that trigger displays.

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 while allowing you to associate a specific date and time for the trigger.

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	Click Trigger Now.... The Trigger Now... pop-up dialog displays. <div data-bbox="224 720 1372 982" style="border: 1px solid gray; padding: 10px; margin: 10px 0;"> </div>
Step 4	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 that you want associated with this trigger. <div data-bbox="224 1083 1372 1486" style="border: 1px solid gray; padding: 10px; margin: 10px 0;"> </div> <div data-bbox="261 1535 1446 1665" style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> Note Additionally, you also 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).</p> </div>
Step 5	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](#)
- [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.
- [Forecast 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, the 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**.

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

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 display Forecast Details either by:

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

Forecast Details
Close

Forecast Child Forecast

Task: <input type="text" value="stonebranch-windowstask-01"/>	Trigger: <input type="text" value="stonebranch-crontrigger-01"/>
Task Type: <input type="text" value="Windows"/>	Launch Time: <input type="text" value="2014-07-08 20:00:00 -0400"/>
Workflow: <input type="text"/>	End Time: <input type="text" value="2014-07-08 20:00:00 -0400"/>
Member of Business Services: <input type="text"/>	Run Criteria Evaluation: <input type="text" value="Run"/>
Simulation: <input type="checkbox"/>	Agent Cluster: <input type="text"/>
Agent: <input type="text" value="stonebranch-windowsagent-01"/>	Agent Cluster Variable: <input type="text"/>
Agent Variable: <input type="text"/>	Cluster Broadcast: <input type="text"/>

Close

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 to the Trigger Details for this trigger.
Launch Time	Calculated start time of this task.
End Time	Calculated end time of this task.
Run Criteria Evaluation	<p>Evaluation, based on run criteria specified for this task via the Workflow Task Details, of whether this task run or skip when the Workflow is run.</p> <p>Tasks, including Workflows, launched directly by the trigger will always have a run criteria evaluation of Run. Likewise, tasks within a launched Workflow that do not have any run criteria defined will always have a run criteria evaluation of Run.</p> <p>Any task within a Workflow with run criteria utilizing variables will have a run criteria 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 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.

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 under [Trigger Permissions](#) and [Task Permissions](#).



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	<input checked="" type="checkbox"/>	System Default	stonebranch-user-01	2014-06-20 14:35:00 -0400
stonebranch-timetrigger-02			Time	Simple	System Default	<input checked="" type="checkbox"/>	System Default	stonebranch-user-02	2014-06-13 14:43:30 -0400
stonebranch-timetrigger-03			Time	Simple	System Default	<input checked="" type="checkbox"/>	System Default	stonebranch-user-03	2014-06-13 14:43:36 -0400
stonebranch-timetrigger-04			Time	Simple	System Default	<input checked="" type="checkbox"/>	System Default	stonebranch-user-04	2014-06-13 14:43:41 -0400
stonebranch-timetrigger-05			Time	Simple	System Default	<input checked="" type="checkbox"/>	System Default	stonebranch-user-05	2014-06-13 14:43:46 -0400

The next scheduled time also displays in the trigger Details:

Time Trigger Details: stonebranch-timetrigger-01

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

Time Trigger Variables Versions

General

Name: stonebranch-timetrigger-01 Version: 4

Description:

Calendar: System Default Member of Business Services:

Task(s): stonebranch-windowstask-01

Status

Forecast: Status: Enabled

Skip Count: 0 Enabled By: ops.admin

Skip Trigger if Active: Next Scheduled Time: 2014-07-02 12:01:13 -0400

Simulate: -- System Default --

Time Details

Time Style: Time Interval Time Interval: 3

Time Zone: System (US/Eastern) Time Interval Units: Hours

Restrict Times: Enable Offset:

Day Details

Day Style: Simple

Daily Business Days Specific Day(s)

Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Restrictions

Special Restriction:

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

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 = 100).

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**.

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
Monday, July 21, 2014 01:17:55 EDT -0400
Monday, July 21, 2014 04:17:55 EDT -0400
Monday, July 21, 2014 07:17:55 EDT -0400
Monday, July 21, 2014 10:17:55 EDT -0400
Monday, July 21, 2014 13:17:55 EDT -0400
Monday, July 21, 2014 16:17:55 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 custom days	Create the 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 custom days to calendars	Assign one or more of the custom days to one or more of the calendar(s).
Create copies of calendars	Create one or more copies of any calendar, as desired.

You can assign a Custom Day to a Calendar either from the [Custom Day](#) or from the [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

- Creating Custom Days
 - Custom Day Details
 - Custom Day Details Field Descriptions
- 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

Creating Custom Days

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

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. (You also can click the **New** button to display Custom Day Details for a new Custom Day.)

The screenshot shows the 'Custom Days' interface. At the top, there is a tab labeled 'Custom Days' with a close button. Below it, a list of 5 custom days is displayed in a table. The table has columns for Name, Type, Description, Period, Holiday, Updated By, and Updated. Below the list, there is a 'Custom Day Details' section with tabs for 'Custom Day', 'Calendars', and 'Versions'. The 'Custom Day' tab is active, showing a form with fields for Name, Description, Version (set to 1), Period (checkbox), Holiday (checkbox), Type (set to Single Date), and Date (set to 2014 Jul 8). There are 'Save' and 'New' buttons at the bottom of the form.

Name	Type	Description	Period	Holiday	Updated By	Updated
stonebranch-customday-01	Single Date		No	No	stonebranch-user-01	2014-06-13 14:51:25 -0400
stonebranch-customday-02	Single Date		No	No	stonebranch-user-02	2014-06-13 14:51:36 -0400
stonebranch-customday-03	Single Date		No	No	stonebranch-user-03	2014-06-13 14:51:42 -0400
stonebranch-customday-04	Single Date		No	No	stonebranch-user-04	2014-06-13 14:51:46 -0400
stonebranch-customday-05	Single Date		No	No	stonebranch-user-05	2014-06-13 14:51:51 -0400

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 temporarily [hide the list](#).

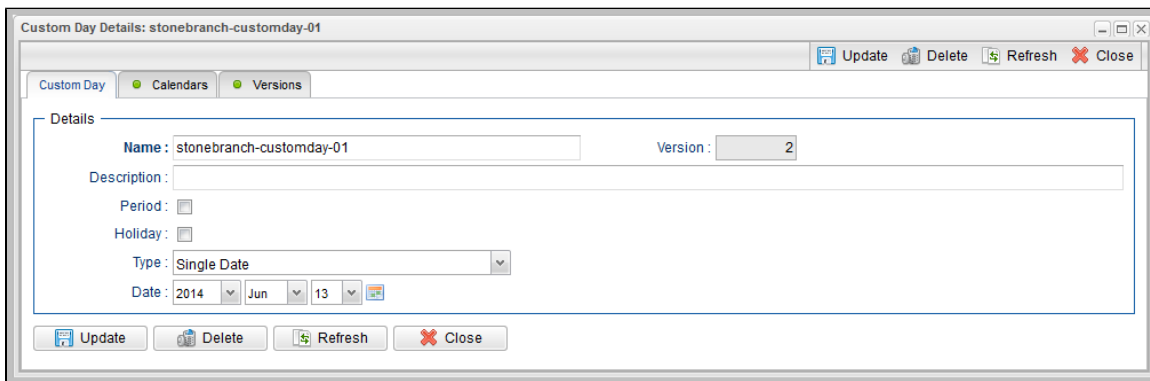
Note
 If you view [Custom Day Details](#) for an existing Custom Day by clicking a Custom Day in the list, and then want to create a new Custom Day, you must click the **New** button that displays above and below the Details.

Step 3 Click the **Save** button. The Custom Day is added to the database, and all buttons and tabs in the Details are enabled.

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.



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.

Period	<p>Indication of whether or not this Custom Day defines a custom period of days (for example: quarters, fiscal year, or 4-5-4 calendar).</p> <p>Custom periods can be selected in:</p> <ul style="list-style-type: none"> • Date Qualifier field for Time Triggers. • Restriction Qualifier field for Time, Cron, File Monitor, Task Monitor, and Application Monitor triggers. <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note If a Custom Day is for a specific day rather than a period, it can be selected in:</p> <ul style="list-style-type: none"> • Date Noun field for Time triggers. • Restriction Noun field for Time, Cron, File Monitor, Task Monitor, and Application Monitor triggers. </div>
Holiday	<p>Indication of whether or not this Custom Day record is defining a holiday. Dates flagged as holidays become involved when the user enables Special Restriction on a trigger and selects a situation of On Holiday.</p>
Type	<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.
Date (yyyy-mm-dd)	If Type = Single Date; specific date for this Custom Day (selected from the drop-down lists or the Calendar tool).
Dates	If Type = List of Dates; multiple specific dates for this Custom Day (selected from the drop-down lists or the Calendar tool).
When	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.
Day Of Week	If Type = Relative Repeating Date; day of the week. Example: The 4th Thursday of November.
Month	If Type = Relative Repeating Date or Absolute Repeating Date; month of the year, or All. Example: The fourth Thursday of November.
Day	If Type = Absolute Repeating Date; day of the month (1 through 31). Example: December 25.
Buttons	This section identifies the buttons displayed above and below the Custom Day Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Update	Saves updates to the record.
New	Displays empty (except for default values) Details for creating a new task.
List Qualifying Dates	Displays a list of the next 30 dates on which this day occurs.
List Qualifying Periods	Displays a list of the next 30 periods in which this day occurs.
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 .

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.

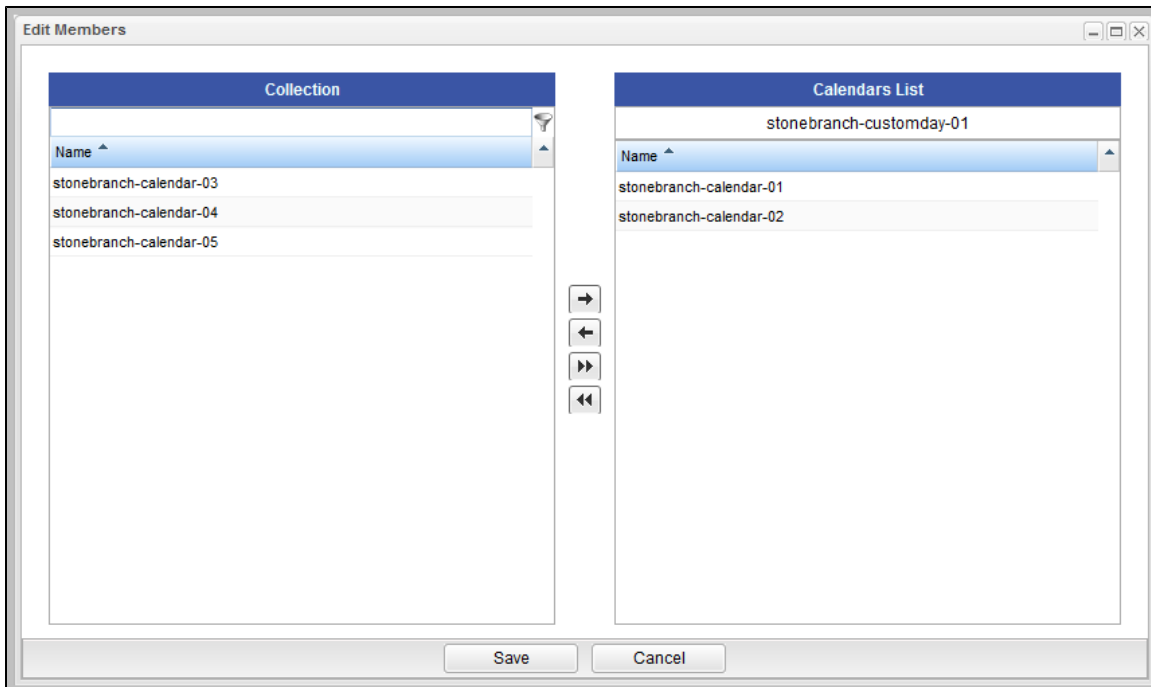
Custom Day Details: stonebranch-customday-01

Custom Day | **Calendars** | Versions

New Edit

Calendar	Description	Updated By	Updated
stonebranch-calendar-02		stonebranch-user-01	2014-07-08 09:20:32 -0400
stonebranch-calendar-01		stonebranch-user-02	2014-07-08 09:20:32 -0400

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:

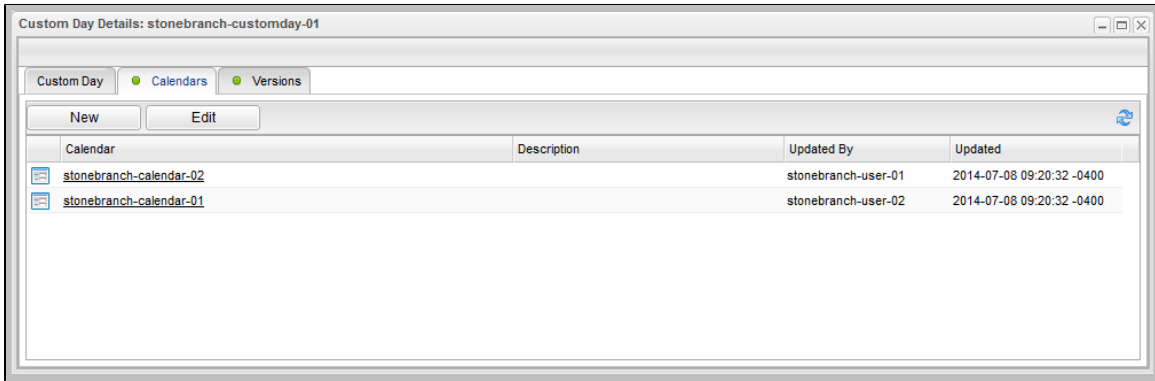
1. To move a single Calendar, double-click it or click it once and then click the < arrow.
2. To move multiple Calendars, Ctrl-click them and then click the < arrow.
3. To move all Calendars, click the << arrow.

Step 6 Click **Save**.

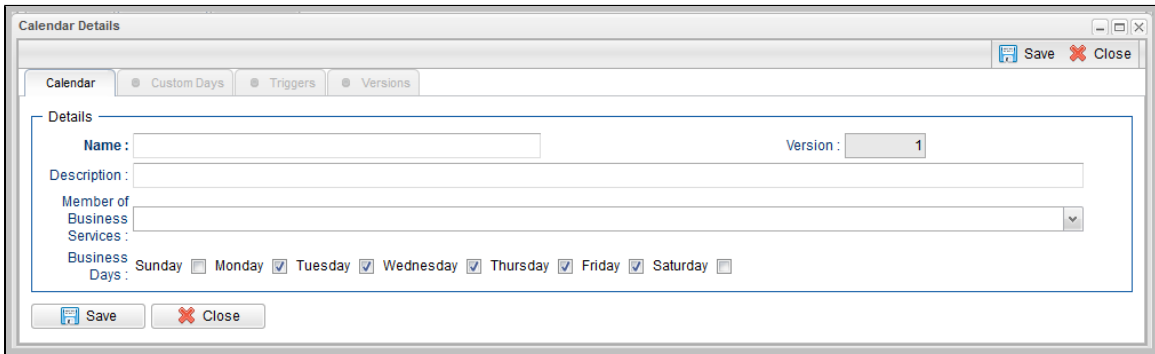
Create a Calendar and Assign the Custom Day to It

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
- 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. (You also can click the **New** button to display Calendar Details for a new Calendar.)

The screenshot shows the 'Calendars' application interface. At the top, there is a 'Calendars' tab and a 'Custom Filter' dropdown set to '-- None --'. Below this is a table listing five calendars:

Name	Description	Updated By	Updated
stonebranch-calendar-01		stonebranch-user-01	2014-07-08 09:20:32 -0400
stonebranch-calendar-02		stonebranch-user-02	2014-07-08 09:20:32 -0400
stonebranch-calendar-03		stonebranch-user-03	2014-06-13 14:50:41 -0400
stonebranch-calendar-04		stonebranch-user-04	2014-06-13 14:50:45 -0400
stonebranch-calendar-05		stonebranch-user-05	2014-06-13 14:50:49 -0400

Below the table is the 'Calendar Details' section, which includes tabs for 'Calendar', 'Custom Days', 'Triggers', and 'Versions'. The 'Calendar' tab is active, showing a form with the following fields:

- Name:** [Text input field]
- Description:** [Text input field]
- Member of Business Services:** [Dropdown menu]
- Business Days:** Sunday Monday Tuesday Wednesday Thursday Friday Saturday
- Version:** [Text input field with value '1']

At the bottom of the details form are 'Save' and 'New' buttons.



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 temporarily [hide the list](#).

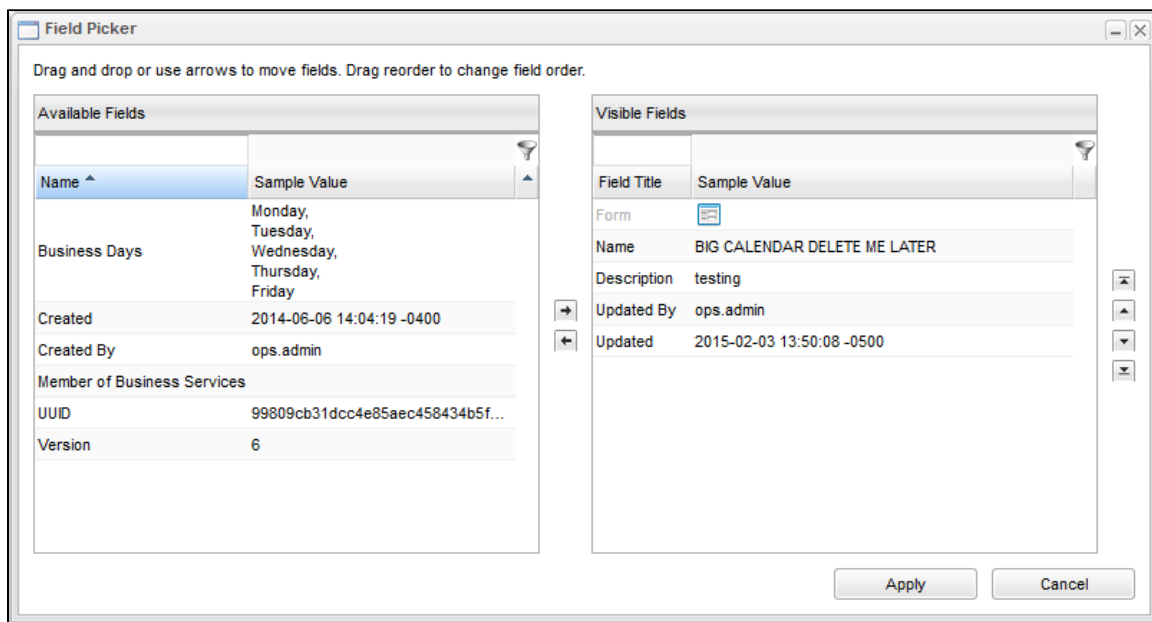
Note
 If you view [Calendar Details](#) for an existing Calendar by clicking a Calendar in the list, and then want to create a new Calendar, you must click the **New** button that displays above and below the Details.

Step 3 Click the **Save** button. The Calendar is added to the database, and all buttons and tabs in the Details are enabled.

Calendars List Columns

The following [Field Picker](#) pop-up dialog identifies the Calendars list columns that are:

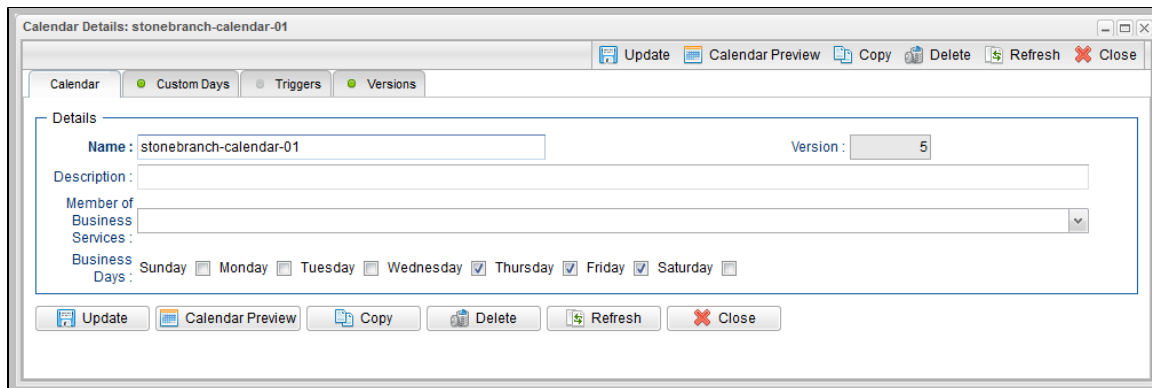
- **Visible** by default.
- **Available** to be made visible.



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.



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 .
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.
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.
New	Displays empty (except for default values) Details for creating a new task.
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.

Custom Days	Lists all custom days associated with this calendar.
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:

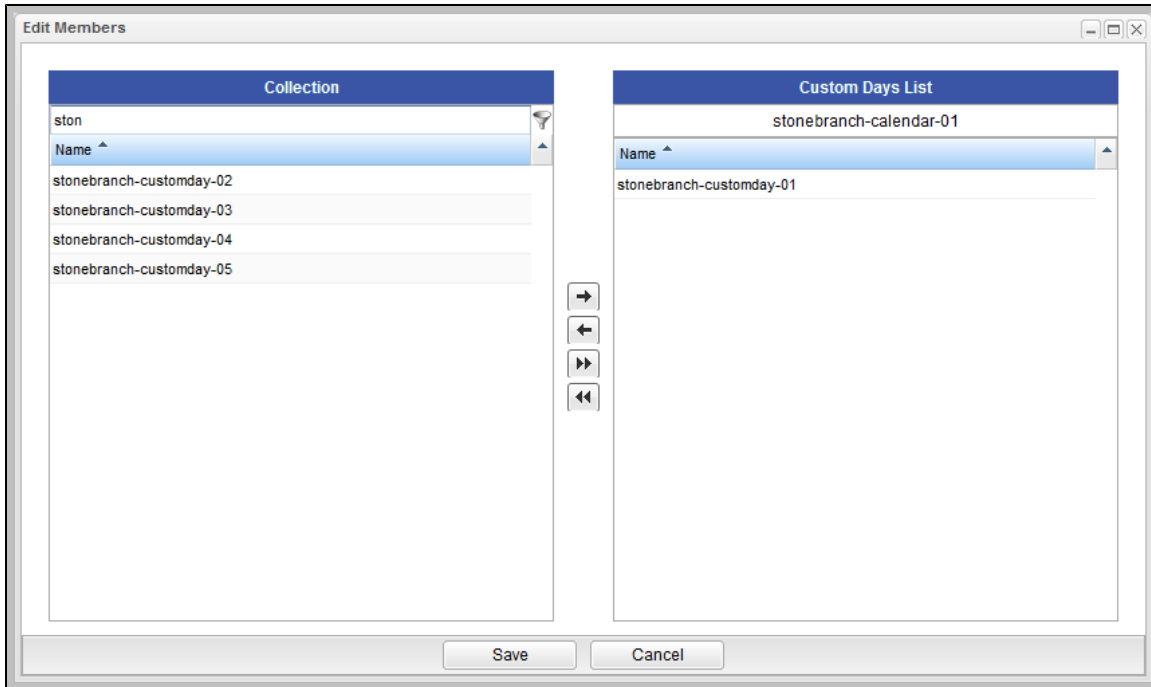
1. [Assign an Existing Custom Day to a Calendar](#)
2. [Create a Custom Day and Assign It to a Calendar](#)

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 Custom Days assigned to this Calendar.

Custom Day	Description	Period	Holiday	Updated By	Updated
stonebranch-customday-01		No	No	stonebranch-user-01	2014-07-08 09:20:32 -0400

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:

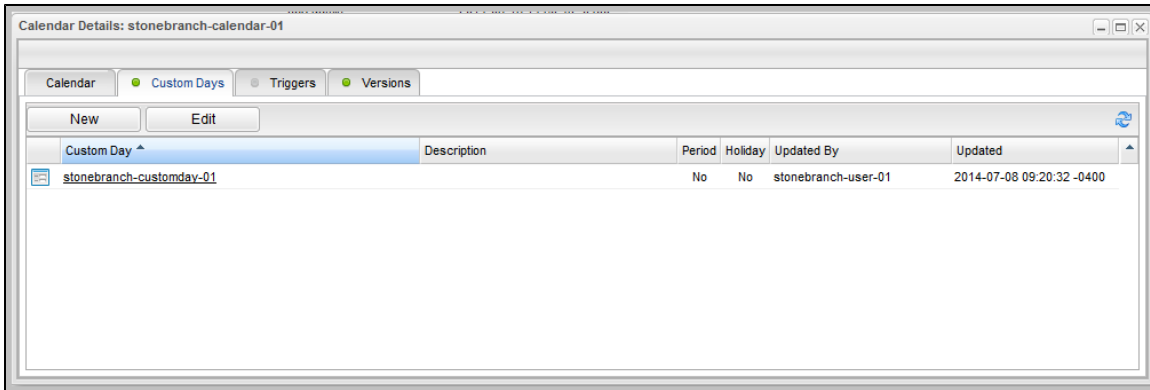
1. To move a single Custom Day, double-click it or click it once and then click the < arrow.
2. To move multiple Custom Days, Ctrl-click them and then click the < arrow.
3. To move all Custom Days, click the << arrow.

Step 6 Click **Save**.

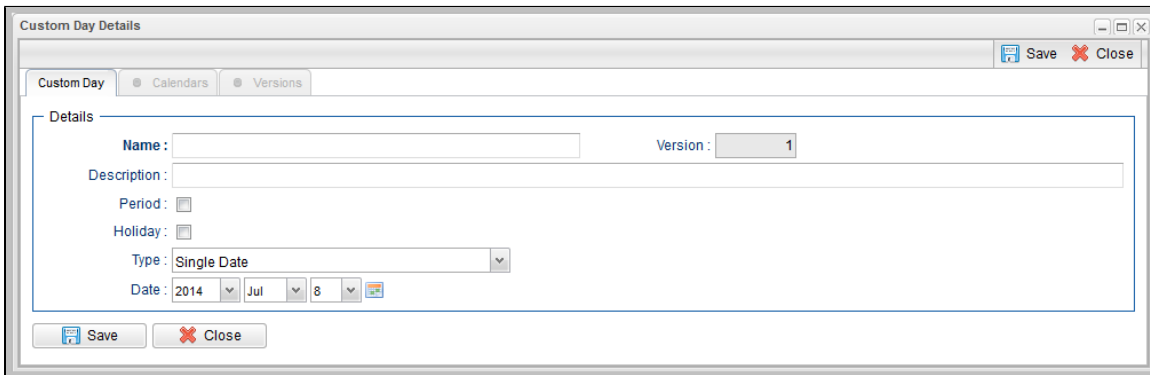
Create a Custom Day and Assign It to a Calendar

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

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



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

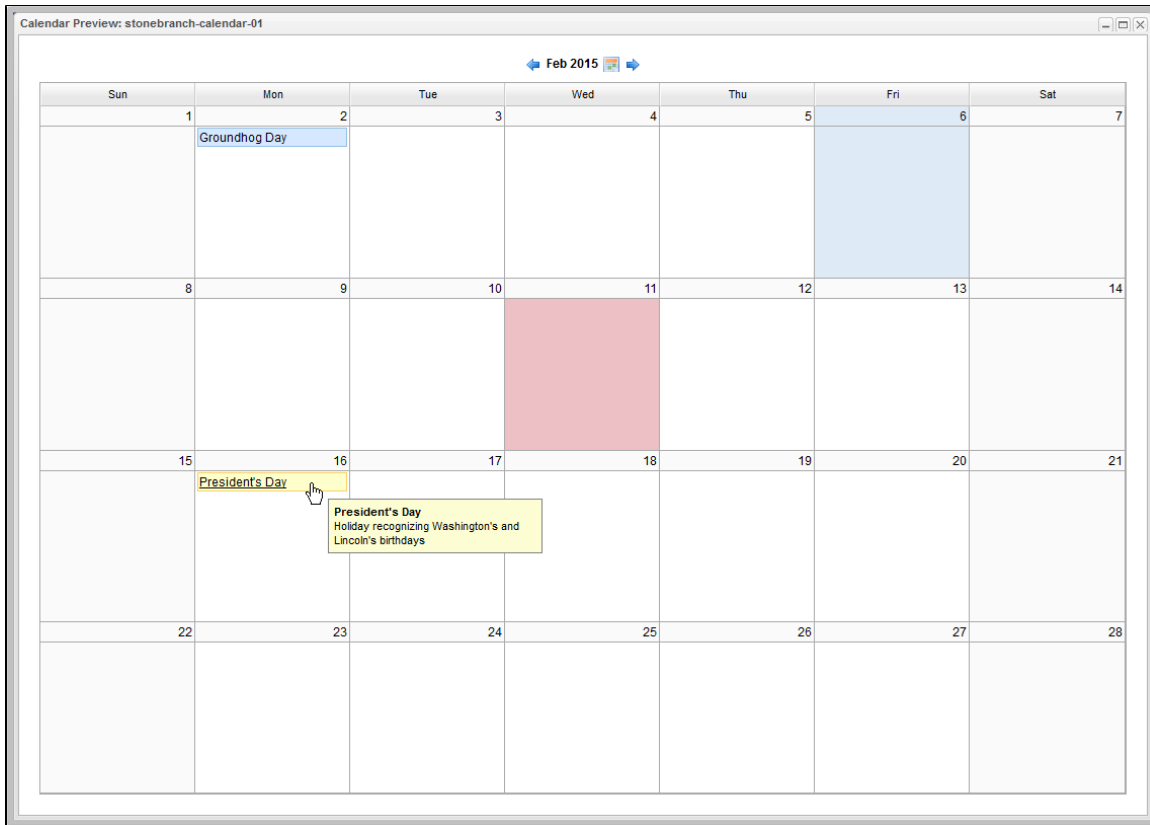


Note

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

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 the following days in a calendar:

- Current day is shaded in Blue.
- Custom Days have the Custom Day name shaded in Blue.
- **Holidays** Custom Days have the Holiday name shaded in Yellow.

Any day (except the current day) that you click in the Calendar becomes shaded in red.

To see the description of a Custom Day or Holiday in the calendar, hover your cursor over the Custom Day or Holiday name.

To see Details of a Custom Day or Holiday in the calendar, click the Custom Day or Holiday name.

Copying Calendars

- Overview
- Copying One or More Calendars from a Calendars List
- Copying a Calendar from the Calendar Details

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 does not make copies of other records that may be attached to the calendar, such as Custom Days and Triggers.

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 calendar(s) you want to copy (see Filtering).
Step 3	<p>Copy the calendar(s):</p> <p>Copy One Calendar</p> <ol style="list-style-type: none"> 1. Right-click the Calendar Name to display an Action menu. 2. Click Copy. A Copy Calendar pop-up dialog displays. <div data-bbox="300 991 1453 1297" data-label="Image"> </div> <ol style="list-style-type: none"> 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. <p>Copy Multiple Calendars</p> <ol style="list-style-type: none"> 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.
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<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> <div data-bbox="224 310 1372 613" style="border: 1px solid gray; padding: 5px;"> <p>Copy Calendar - X</p> <p>Enter a new name for the Calendar and click Submit.</p> <p>Name : <input type="text" value="Copy Of stonebranch-calendar-01"/></p> <p>Member of Business Services : <input type="text" value=""/></p> <p style="text-align: center;"> <input type="button" value="Submit"/> <input type="button" value="Cancel"/> </p> </div>
<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>