Universal Controller 6.2.x

Bundles and Promotion

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Bundles and Promotion

Bundles and Promotion Overview

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The information on these pages also is located in the Universal Controller 6.2.x Bundles and Promotion.pdf.

Bundles and Promotion Overview

- Overview
- Best Practices
  - Bundling from Different Versions of the Controller
  - Creating Objects
- Bundling and Promoting Process

Overview

The Universal Controller Bundles and Promotion feature allows you to select and bundle a group of Controller records and "promote" them from a source Controller to a target Controller. (If desired, you also can promote a single record.)

For example, you can use these features when you create your Workflows on a development Controller then move them to a QA Controller for testing. Once you are satisfied with the stability of the Workflows, you can promote them to your production Controller.

Best Practices

Bundling from Different Versions of the Controller

Bundle promotion from Controller 6.x to Controller 6.x of the same or later version, release, **and** maintenance level is supported (for example, 6.2.0.0 to 6.2.0.0, or 6.1.3.0 to 6.1.3.2).

Bundle promotion from Controller 6.x to any earlier version, release, **or** maintenance level of the Controller is not supported (for example, 6.1.3.2 to 6.1.3.0, or 6.1.3.2 to 5.2.0.5).

Creating Objects

To ensure optimal bundling and promotion of records, make sure that you create bundles on one Controller and promote them to another Controller.

Do not create objects individually on different Controllers.

Bundling and Promoting Process

The general process for bundling and promoting your data is:

Step 1	Prepare a Bundle for Promotion record.
Step 2	Add records to a Bundle.
Step 3	Create a Promotion Target record for each target Controller.
Step 4	Specify Agent mappings between the source and target Controllers.
Step 5	Promote the Bundle to the target Controller.

These features use web services calls to communicate when you are promoting Bundles of records from one Controller to another.

To see a demonstration of how to bundle and promote records, watch the Bundling and Promoting video.

Preparing Bundles for Promotion

- Overview
  - Creating a Bundle for Promotion by Selecting Individual Records
  - Creating a Bundle for Promotion by Date
  - Creating a Bundle for Promotion by Business Services
  - Promoting Bundles by Business Service Membership
  - Bundle Details
- Adding and Removing Records in a Bundle
  - Adding and Removing Records from the Bundle Details
  - Adding a Record to a Bundle from the Record Details
  - Adding Multiple Records to a Bundle from a Records List
- Displaying the Bundles List for a Record
- Reports

Your user ID must have the ops_bundle_admin role to use this feature.

Overview

There are four methods of preparing a Bundle for promotion. Each method involves creating a Bundle and selecting records to be included in the Bundle.

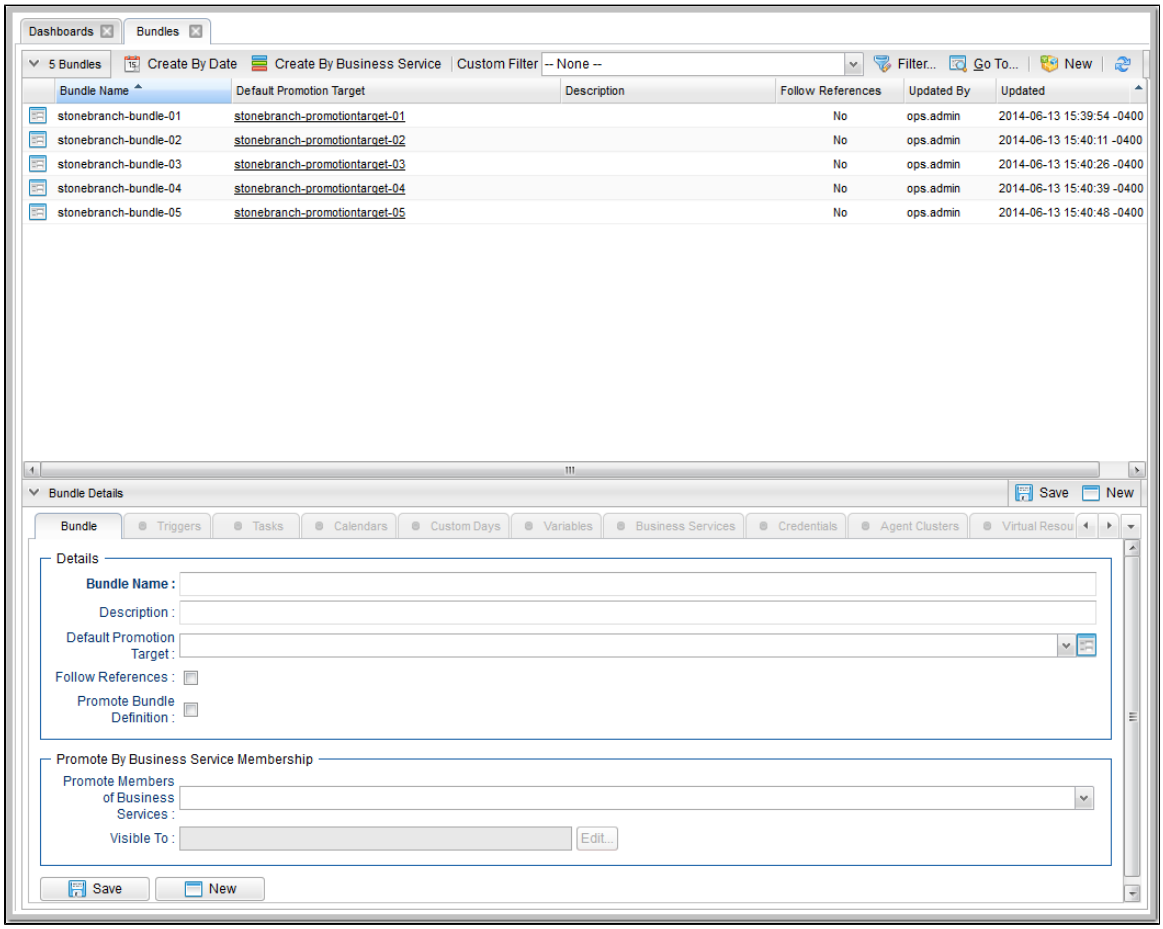
1. Select individual records to include in a Bundle.
2. Automatically create a Bundle, including all records of specified record types created or updated on or after a specified date, by Creating a Bundle for Promotion by Date.
3. Automatically create a Bundle, including all records of specified record types that are members of one or more specified Business Services, by Creating a Bundle for Promotion by Business Services.
4. Configure the Promote By Business Service Membership section of a Bundle to dynamically include all records belonging to one or more business services at the time of promotion.

For each method, you can manually add additional records to a Bundle after it has been created.

Any records explicitly added to a Bundle can be removed from the Bundle after it has been created. However, if the Promote By Business Service Membership feature is configured for a Bundle, all records that qualify based on Business Service membership at the time of promotion will be included.

Creating a Bundle for Promotion by Selecting Individual Records

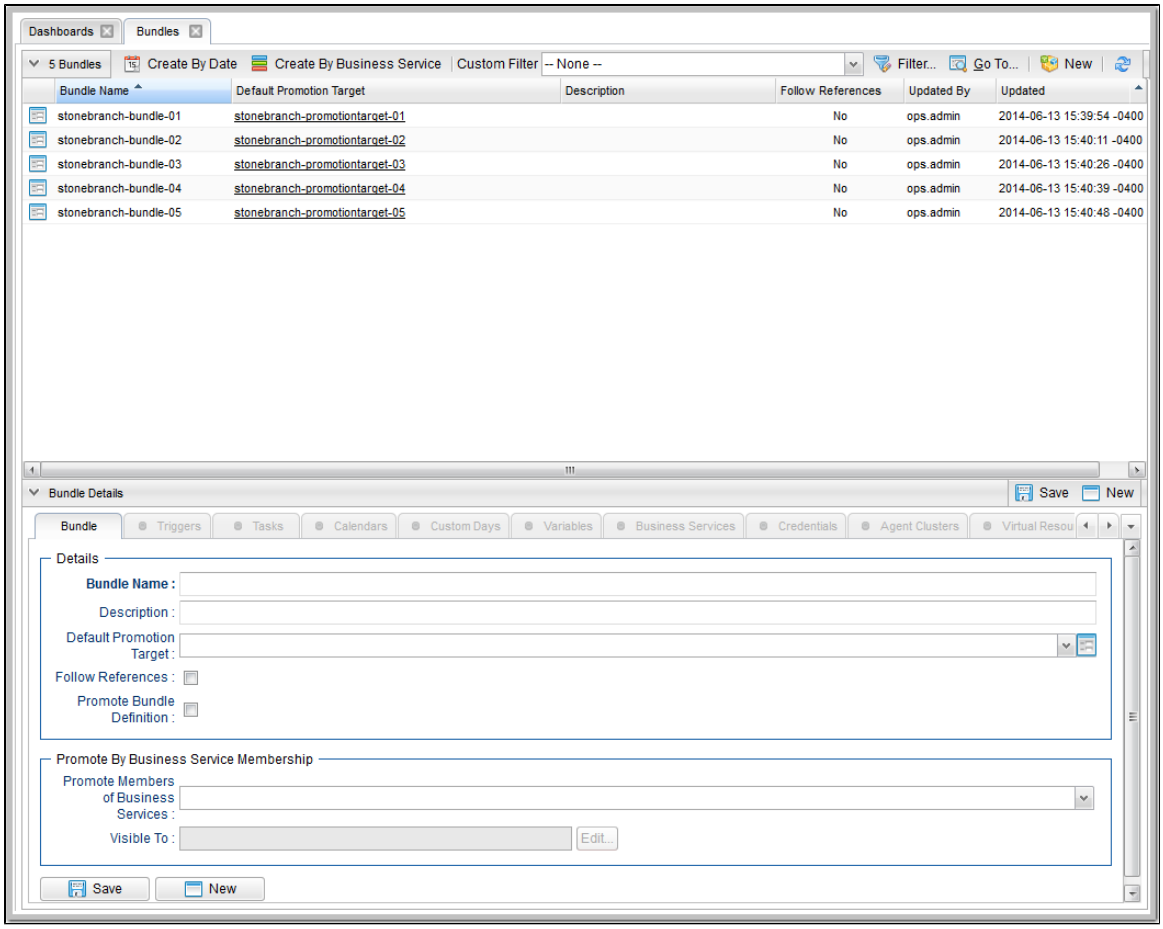
You can select individual records to include in a Bundle promotion.

Step 1	From the Bundles & Promotion navigation pane, select **Bundles**. The Bundles list displays. Below the list, Bundle Details for a new Bundle record displays. (You also can click the **New** button to display Bundle Details for a new Bundle.) 
Step 2	Enter / select Details for a new Bundle, using the field descriptions below as a guide. (The only required field is **Bundle Name**. You do not have to select a Default Promotion Target; you can select (or override) a promotion target when you promote the Bundle.) **Note** If you view Bundle Details for an existing Bundle by clicking a Bundle in the list, and then want to create a new Bundle record, you must click the **New** button that displays above and below the Details.
Step 3	Click the **Save** button. The Bundle record is added to the database, and all buttons and tabs in the Bundle Details are enabled.
Step 4	Open the Bundle and begin adding records to the Bundle.
Step 5	Click the **Update** button.

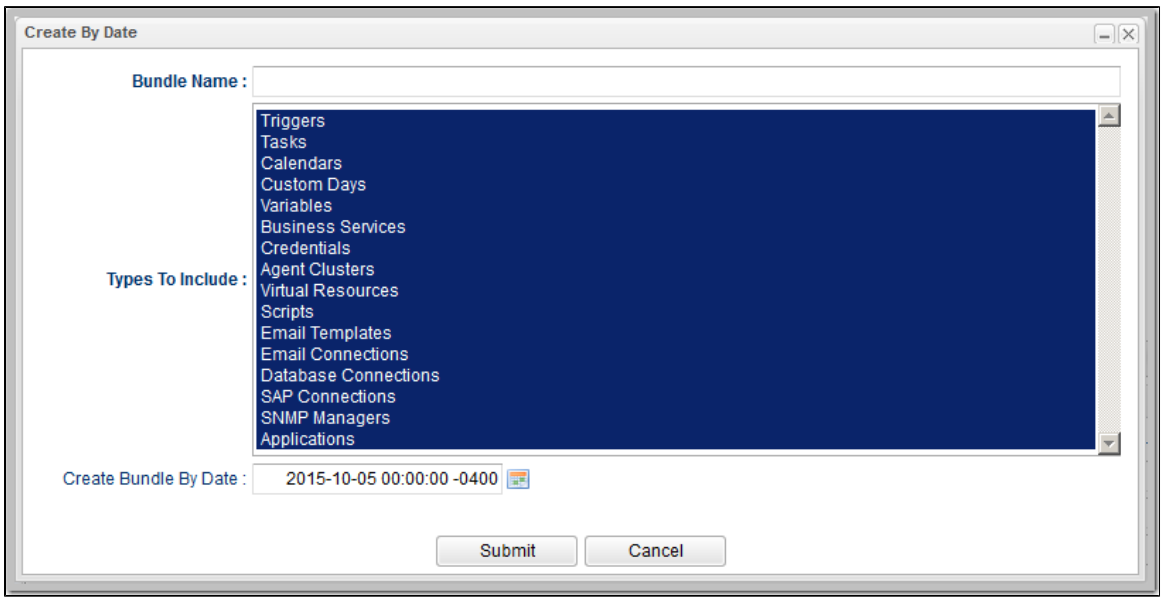
Creating a Bundle for Promotion by Date

This feature allows you to select a date (current or earlier) for a Bundle Promotion. All records created or updated on the Controller on or since that date will be included in the Bundle promotion.

Step 1 From the Bundles & Promotion navigation pane, select **Bundles**. The Bundles list displays.



Step 2 Click the **Create By Date** button at the top of the list. The Create By Date pop-up displays.



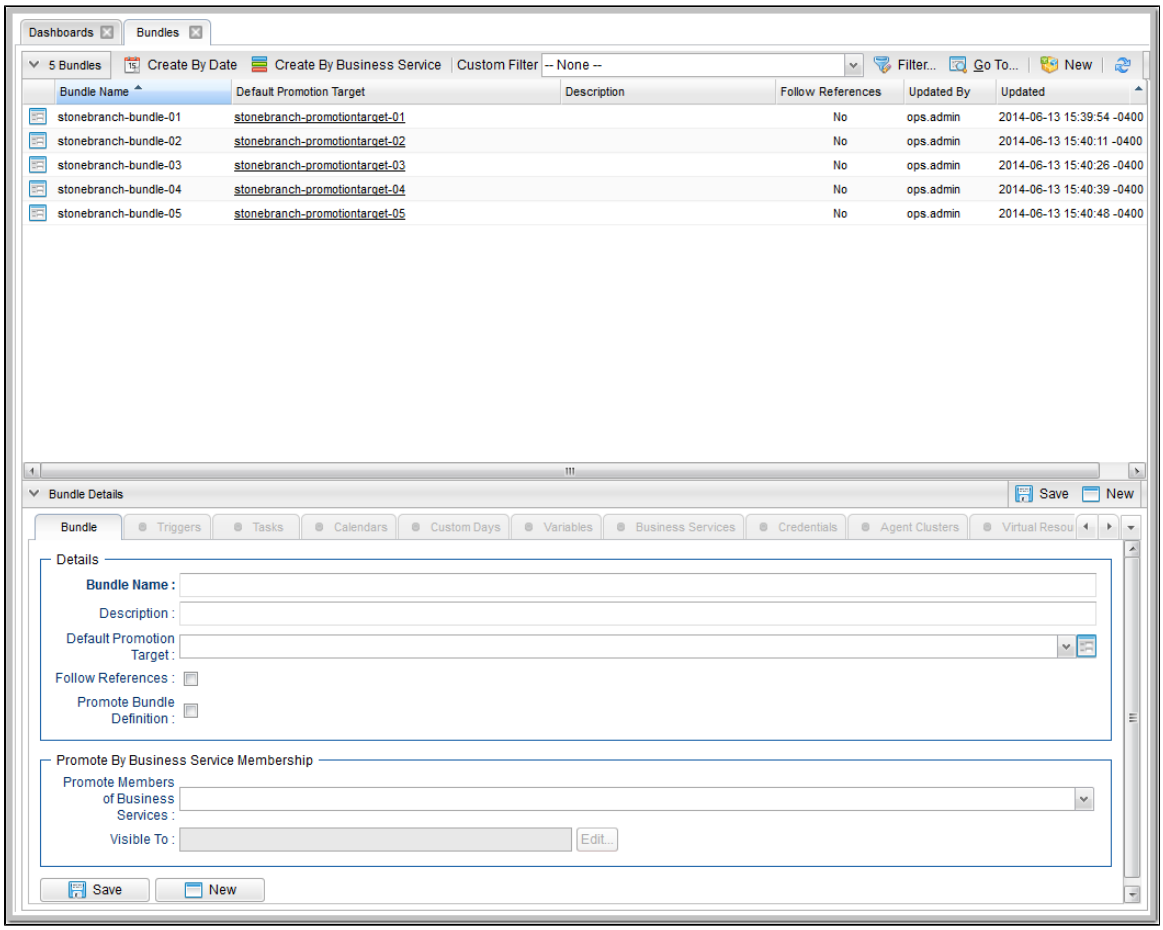
Step 3 The **Types To Include** drop-down list pre-selects all record types. De-select any record type for records that you do not want in the Bundle.

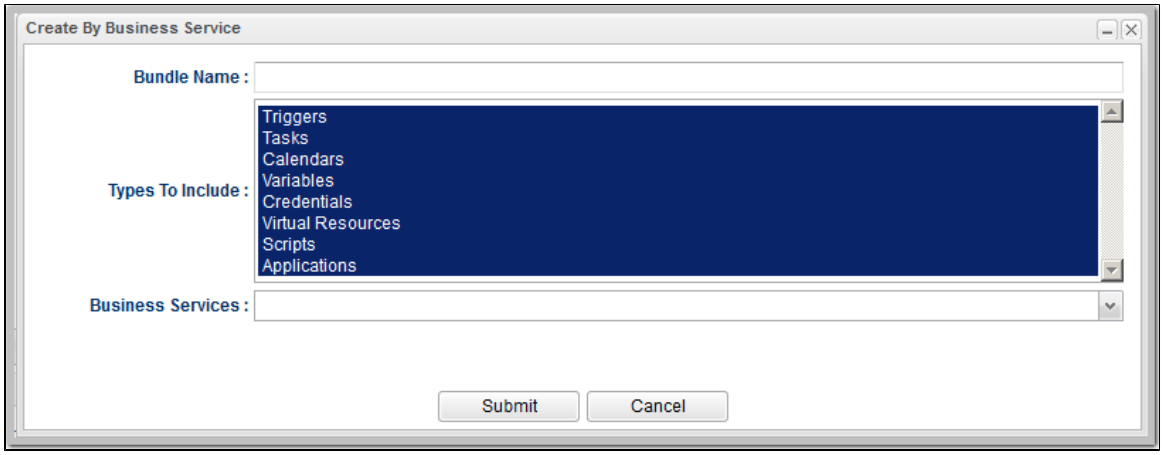
Step 4 The **Create Bundle By Date** field specifies the current date, by default. You can change the date manually or by clicking the Calendar icon. All records created or updated on or after the date that you specify will be included in the bundle.

Step 5	Enter a **Bundle Name** and click the **Submit** button. If any records qualified for inclusion in the Bundle, the Bundle is created, saved to the database, and the Bundle Details display below the list. However, if no records qualified according to the specified date, the Bundle is not saved.
Step 6	You then can open the Bundle and enter / select additional Details for the Bundle, 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.
Step 7	As desired, you also can add any additional records to (or remove any included records from) the Bundle.
Step 8	Click the **Update** button.

Creating a Bundle for Promotion by Business Services

This feature allows you to select Business Services for a Bundle Promotion. Records for selected record types created or updated on the Controller for selected Business Services will be included in the Bundle promotion.

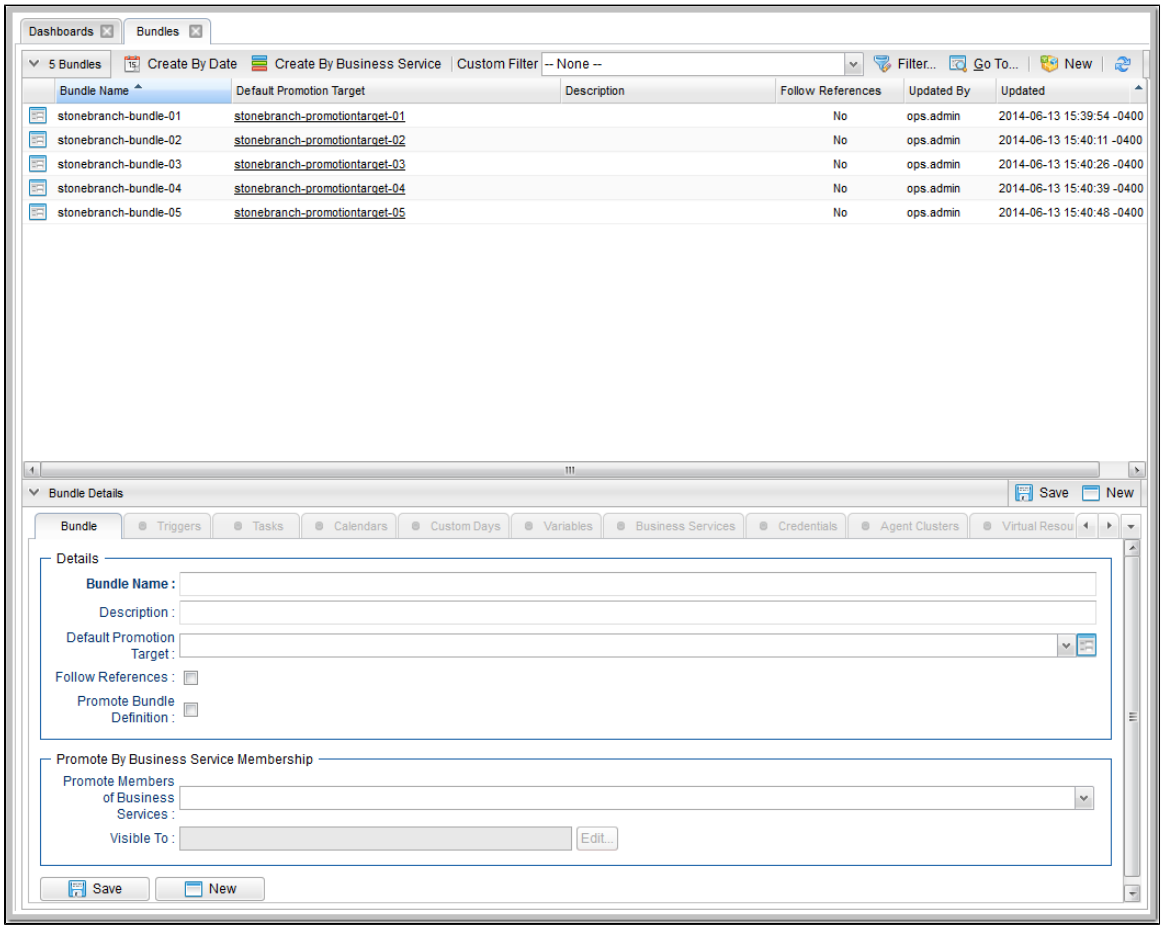
Step 1	From the Bundles & Promotion navigation pane, select **Bundles**. The Bundles list displays. 

Step 2	Click the **Create Bundle By Business Service** button at the top of the list. The Create Bundle By Business Service pop-up displays. 
Step 3	The **Types To Include** drop-down list pre-selects all record types for records that can belong to Business Services. De-select any record type for records that you do not want in the Bundle.
Step 4	In the **Business Services** field, select one or more Business Services whose records you want to include in the Bundle.
Step 5	Enter a **Bundle Name** and click the **Submit** button. If any records qualified for inclusion in the Bundle, the Bundle is created, saved to the database, and the Bundle Details display below the list. However, if no records qualified according to the specified Business Service(s), the Bundle is not saved.
Step 6	You then can open the Bundle and enter / select additional Details for the Bundle, 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.
Step 7	As desired, you also can add any additional records to (or remove any included records from) the Bundle.
Step 8	Click the **Update** button.

Promoting Bundles by Business Service Membership

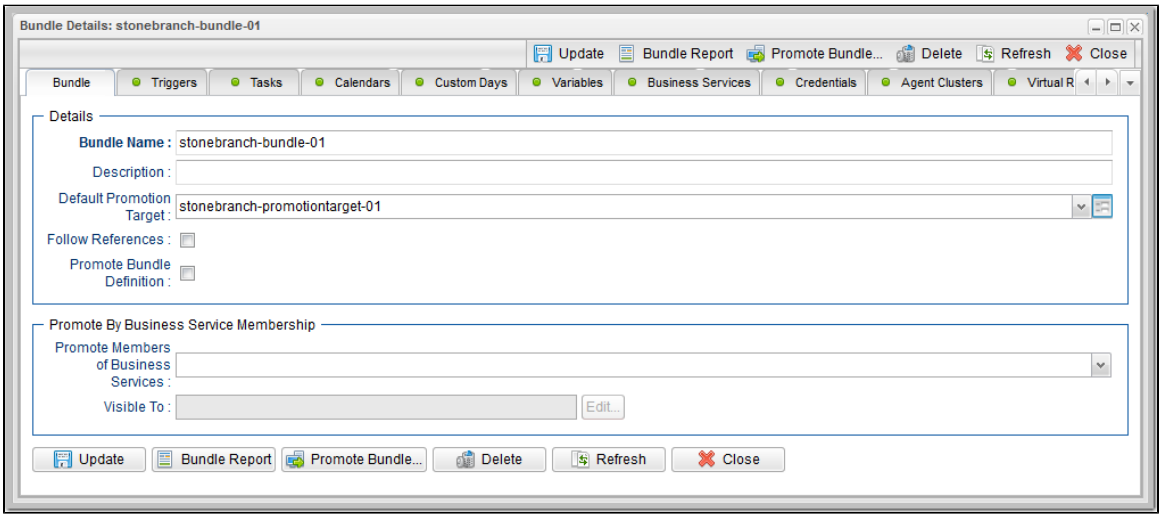
In addition to creating a Bundle for promotion by Business Services, you also can promote a Bundle by Business Service membership. When the Bundle is promoted, any record that is a member of one or more of the specified Business Services will be bundled ***dynamically*** - based on the current configuration of the system - during the promotion.

These records will not be visible from the corresponding Bundle tabs; they will appear only in the Bundle Report, which will identify all records bundled dynamically with a **+** in the **Added By** column.

Step 1	From the Bundles & Promotion navigation pane, select **Bundles**. The Bundles list displays. Below the list, Bundle Details for a new Bundle record displays. (You also can click the **New** button to display Bundle Details for a new Bundle.) 
Step 2	Enter / select Details for a new Bundle, using the field descriptions below as a guide. (The only required field is **Bundle Name**. You do not have to select a Default Promotion Target; you can select (or override) a promotion target when you promote the Bundle.) **Note** If you view Bundle Details for an existing Bundle by clicking a Bundle in the list, and then want to create a new Bundle record, you must click the **New** button that displays above and below the Details.
Step 3	Select one or more Business Services from the **Promote By Business Service Membership** drop-down list.
Step 4	In the **Visible To** field, select a User to which all records being promoted by Business Service membership must be visible. Any qualifying record that is a member of the specified Business Service(s) but is not visible to the specified user will not be promoted.
Step 5	Click the **Save** button. The Bundle record is added to the database, and all buttons and tabs in the Bundle Details are enabled. When the Bundle is promoted, all records that are members of the specified Business Services at the time of the promotion will be included in the promotion.
Step 6	As desired, you can open the Bundle and add any additional records to the Bundle.
Step 7	Click the **Update** button.

Bundle Details

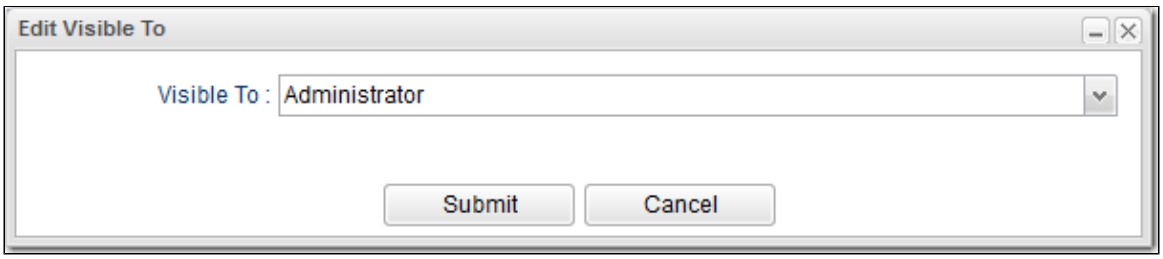
The following Bundle Details is for an existing Bundle. See the field descriptions, below, for a description of all fields that display in the Bundle Details.



Bundle Details Field Descriptions

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

Field Name	Description
Details	This section contains detailed information about the Bundle.
Bundle Name	Name for this bundle.
Description	User-defined; description of this record. (Maximum = 200 characters.)
Default Promotion Target	Allows you to browse for and select a Promotion Target, which you defined using the Promotion Targets feature. If you do not specify a default promotion target, you will be prompted for a target when performing a promotion of the bundle.
Follow References	Specification for whether or not to dynamically include items that are referenced by bundled item definitions, including items being promoted as members of Business Services. For example, if you bundle an Email Task and enable the Follow References field, the Email Connection and/or Email Template referenced by the Email Task will be included in the promotion operation. If you bundle a Trigger and enable the Follow References option, the Task(s) and Calendar referenced by the Trigger will be included in the promotion. Tasks within a bundled Workflow are included in the promotion regardless of the Follow Reference option. Custom Days that are defined within a bundled Calendar are included in the promotion regardless of the Follow Reference option as well. (The information included is similar to the information included in an XML export with references.) See Objects Promoted When Follow References is Selected or Not Selected.
Promote Bundle Definition	Enable this option to promote the Bundle Details, along with the Bundle itself, when promoting the Bundle.
Promote By Business Service Membership	This section contains detailed information for promoting the Bundle with records that are members of one or more Business Service and are visible to a specified user.

Promote Members of Business Services	Business Service(s) whose members will be included in the promoted Bundle.
Visible To	User to which all records being promoted by Business Service membership must be visible. Any qualifying record that is a member of the specified Business Service(s) but is not visible to the specified user will not be promoted. Default is the last user to update the Promote Members of Business Services field. You can change the specified user by clicking the **Edit** button next to the **Visible To** field. An Edit Visible To pop-up dialog displays: 
Buttons	This section identifies the buttons displayed above and below the Bundle Details that let you perform various actions.
Save	Saves a new record in the Controller database.
Update	Saves updates to the record.
New	Displays empty (except for default values) Details for creating a new Bundle record.
Bundle Report	Allows you to generate a report about the current bundle. See Generating a Bundle Report.
Promote Bundle	Allows you to promote this bundle to a target Universal Controller server. See Promoting Bundles and Records to a Target.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this record.
Tabs	This section identifies the tabs across the top of the Bundle Details that provide access to additional information about the Bundle.
<record type> tabs	Each tab of the following record types lists the records of that type that belong to this Bundle. An **Edit** button on each record type list allows you to add records to and remove records from the Bundle (see Adding and Removing Records in a Bundle, below). • Triggers • Tasks • Calendars • Custom Days • Variables • Business Services • Credentials • Agent Clusters • Virtual Resources • Scripts • Email Templates • Email Connections • Database Connections • SNMP Managers • SAP Connections • Applications

Adding and Removing Records in a Bundle

If you want to select individual records for a Bundle promotion, you first must create and save a Bundle, which is empty of records until you manually add them.

If you selected a date for a Bundle promotion, the Bundle automatically contains records that were added or updated since the specified date, but you can manually add more records to the Bundle or remove any of the automatically added records from the Bundle.

If you selected Business Services Memberships for a Bundle Promotion, records that are members of the selected Business Services are not included in the Bundle until it is promoted. However, you can manually add additional records to the Bundle.

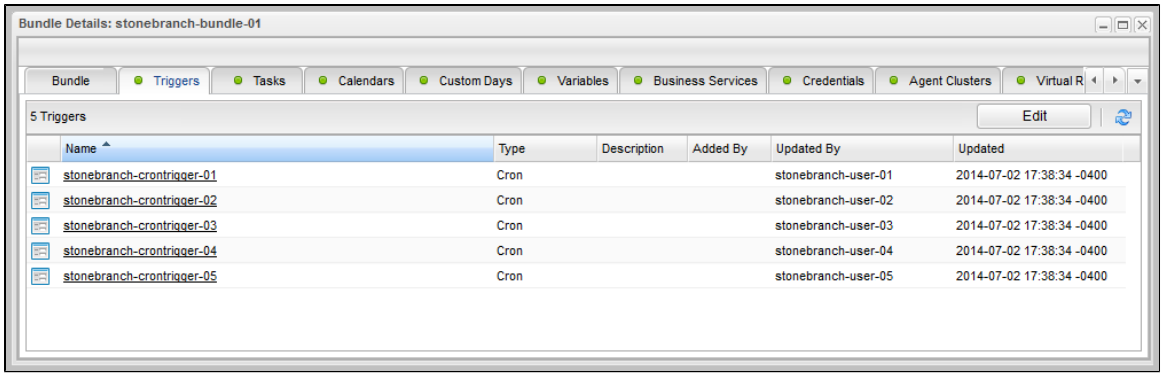
You can add a record to a Bundle from:

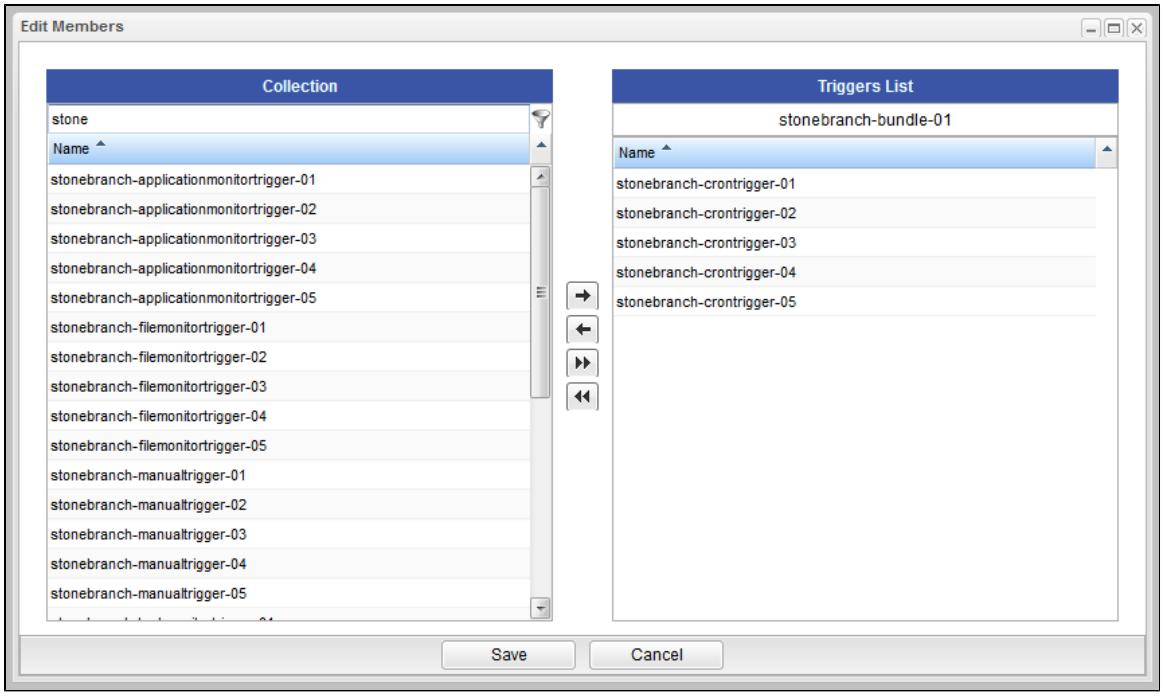
- Bundle Details
- Record Details
- Records List for the record

You can remove a record from a Bundle only from:

- Bundle Details

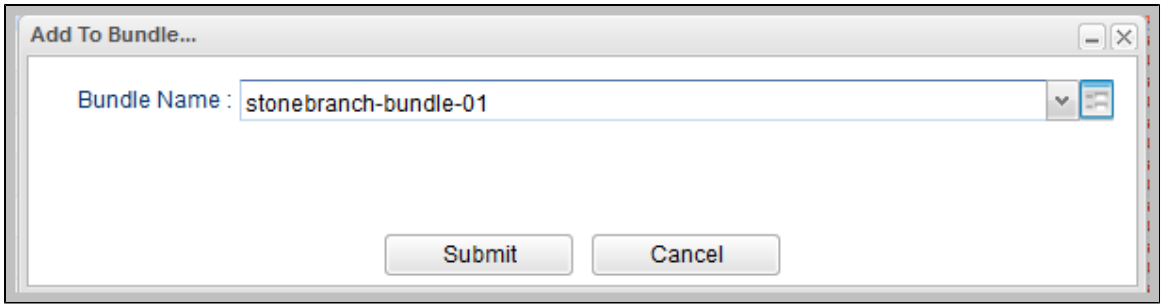
Adding and Removing Records from the Bundle Details

Step 1	Display the Bundle Details of the Bundle to which you want to add records.
Step 2	Click a <record type> tab for records that you want to add to the Bundle. A list of all records currently in the Bundle for that type are listed. (If you are adding records to a new Bundle, the list for every record type will be empty.) For example: 

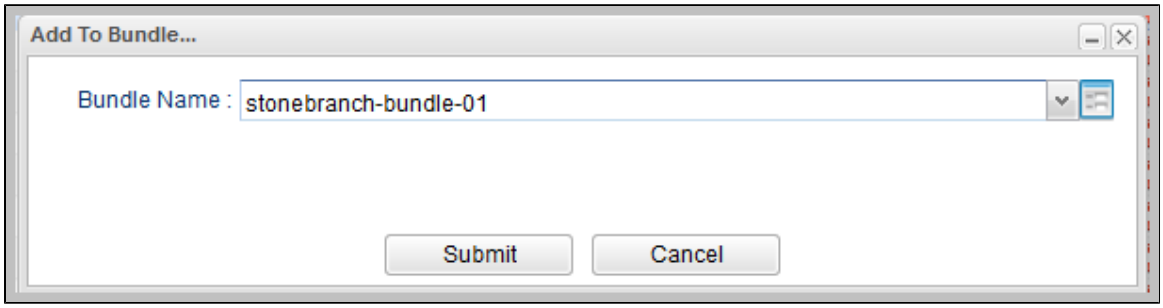
Step 3	Click the **Edit** button above the list. An **Edit Members** pop-up displays that allows you to add records to the Bundle. For example:  • The **Collection** window displays all records of this type that have not been added to the Bundle. • The **Tasks List** window displays all records of this type that have been added to the Bundle.
Step 4	To filter the records listed in the Collection window, enter characters in the text field above the **Name** column. Only records containing that sequence of characters will display in the list.
Step 5	To add a record to the Bundle, move the records from the **Collection** window to the **List** window: 1. To move a single record, double-click it or click it once and then click the **>** arrow. 2. To move multiple records, Ctrl-click them and then click the **>** arrow. 3. To move all records, click the **>>** arrow. To remove a record from the Bundle, move the record from the **List** window to the **Collection** window: 1. To move a single record, double-click it or click it once and then click the **<** arrow. 2. To move multiple records, Ctrl-click them and then click the **<** arrow. 3. To move all records, click the **<<** arrow.
Step 6	Click **Save**.
Step 7	Repeat the above steps in the appropriate tabs for all records you want to add.

Adding a Record to a Bundle from the Record Details

Step 1	Display the list of records containing the record that you want to add to a Bundle.
Step 2	Either right-click the record you want to add or display the Details for that record.

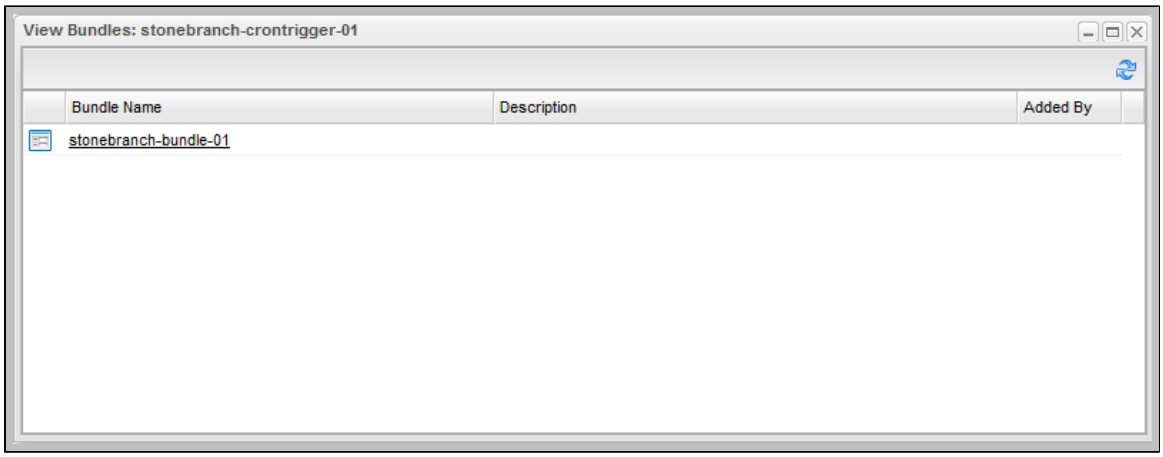
Step 3	Display the Action menu and select **Add to Bundle**. The **Add To Bundle** pop-up displays. 
Step 4	Select a **Bundle Name** from the drop-down list and click **Submit**. The record is added to the Bundle (see Displaying the Bundles List for a Record).

Adding Multiple Records to a Bundle from a Records List

Step 1	Display the list of records containing the records that you want to add to a Bundle.
Step 2	Ctrl-click the records that you want to add to the Bundle.
Step 3	Display the Action menu and select **Add to Bundle**. The **Add To Bundle** pop-up displays. 
Step 4	Select a **Bundle Name** from the drop-down list and click **Submit**. The records are added to the Bundle (see Displaying the Bundles List for a Record).

Displaying the Bundles List for a Record

To display a list of Bundles that a record belongs to:

Step 1	Access the Action menu for the record and select **View Bundles**. A View Bundles pop-up displays the list of Bundles that the record belongs to. 
Step 2	To view Details for a Bundle on the list, click its **Bundle Name**.

Reports

Universal Controller does not support the bundling and promotion of reports. Any report required by a promoted task must already be available on the target system.

Best Practice
We recommend that if you are sharing reports between systems:

1. Create the reports on the source system.
2. List Export the reports.
3. List Import the reports into the target system.

If an Email Task or an Email Notification action for any task type contains a reference to a specific report by id, the promotion payload will include report meta data to allow for proper validation and potential remapping of the report reference on the target system.

The meta data includes:

- Report id
- Report title
- Report user name / user id
- Report group name / group id

If a report by the same id exists on the target system, no UUID mapping is required and the promotion can proceed without issue.

If a report by the same id does not exist on the target system, UUID mapping is required before the promotion can proceed.

Using the report metadata, the Controller will attempt to find a report on the target system with the same title and same visibility.

- If a report is found, the incoming report id will be remapped to the appropriate target system report id.
- If a report is not found, the promotion will fail with the following message: `Unable to find mapping on target system for report reference id report-id. {meta-data}.`

Note
You can disable all Report-related promotion validation on the target system via the Validate Report References On Promotion Universal Controller system property.

Generating a Bundle Report

- Introduction
- Generating a Report

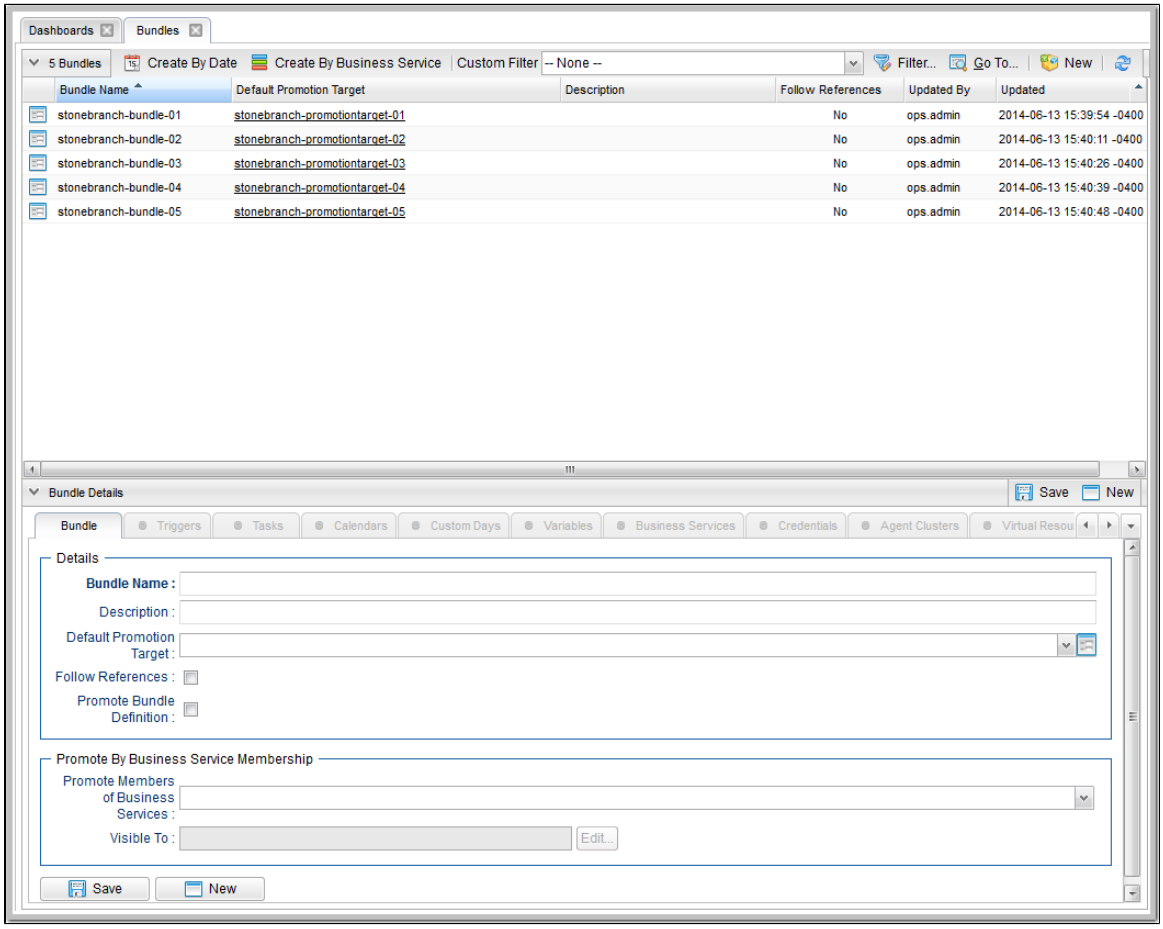
Introduction

A Bundle Report displays a list of all records included in a Bundle, categorized by record type.

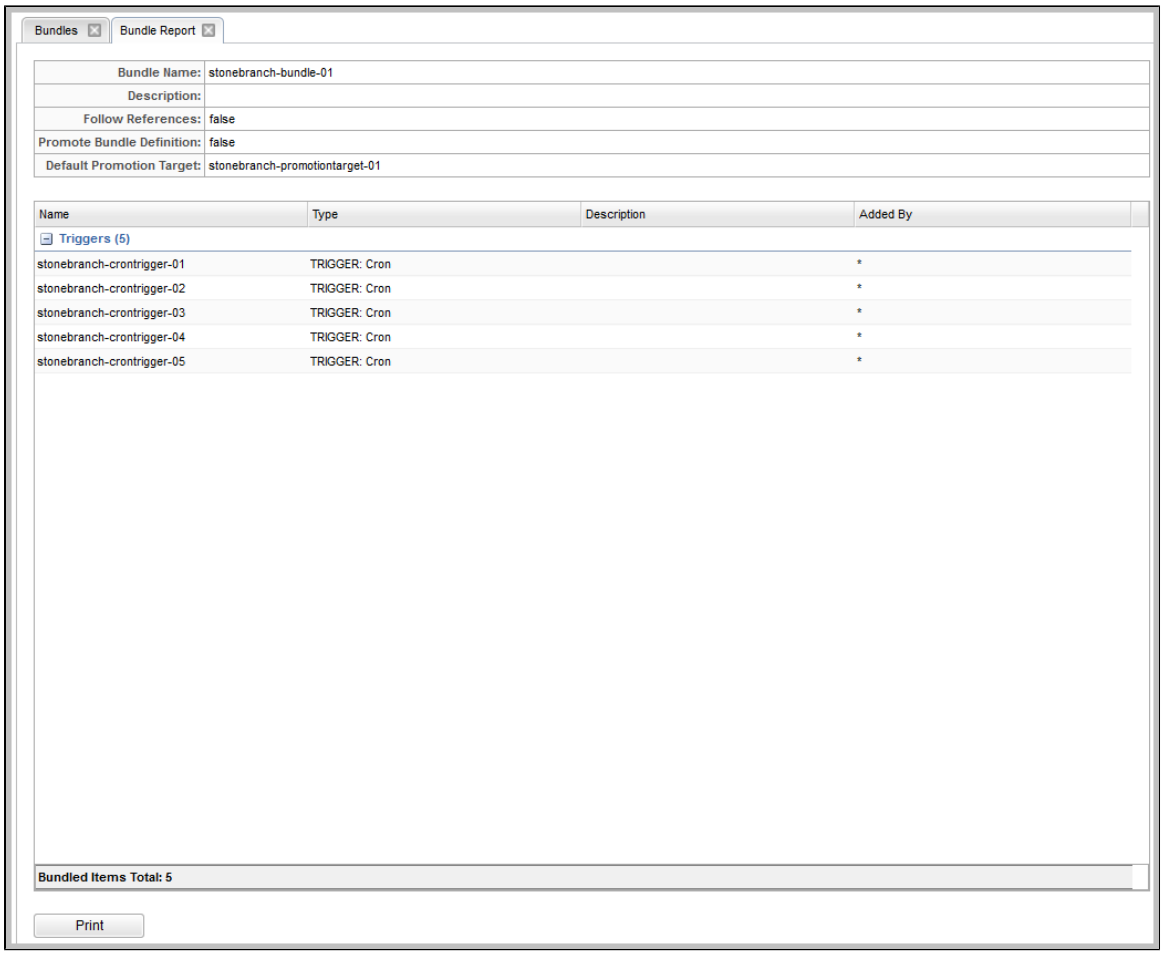
Generating a Report

To generate the report:

Step 1 From the Bundles & Promotion navigation pane, select **Bundles**. The Bundles list displays.



Step 2 Either right-click the Bundle that you want to create a Bundle Report for and click **Bundle Report** in the Action menu, or display the Details for the Bundle and click the **Bundle Report** button. A Bundle Report displays for that Bundle.



> **Note**
> **Added By** column information:
>
> - Items included in the promotion that were added directly to the Bundle have a user id in the **Added By** column.
> - Items included in the promotion dynamically as Tasks within a Workflow, Custom Days within a Calendar, or, when the Follow References field is enabled, the items referenced by the bundled items, have an asterisk (*****) in the **Added By** column. (See Objects Promoted When Follow References is Selected or Not Selected.)
> - Items included in the promotion dynamically when the Bundle is promoted by Business Service membership have a plus sign (**+**) in the **Added By** column.

Step 3 If you want to print the report, click the **Print** button at the bottom of the report.

Creating Promotion Targets

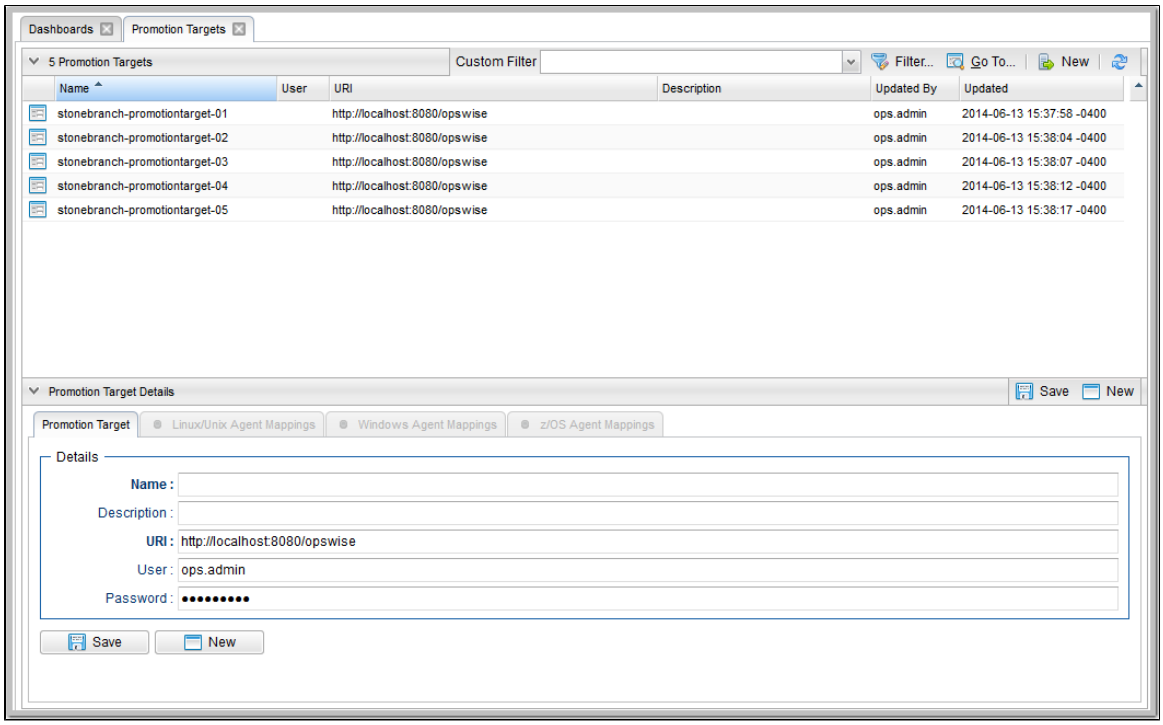
- Creating a Promotion Target
- Promotion Target Details
  - Promotion Target Details Field Descriptions

Creating a Promotion Target

Before you can promote a Bundle (or individual record) to Universal Controller, you must create a Promotion Target record for a cluster node of that Controller. A Promotion Target record contains the Uniform Resource Identifier (URI) of a target cluster node and, optionally, the user name and password required to log on to the cluster node.

Step 1 From the Bundles & Promotion navigation pane, select **Promotion Targets**. The Promotion Targets list displays a list of existing Promotion Targets.

Below the list, Promotion Target Details for a new Promotion Target record displays. (You also can click the **New** button to display Promotion Target Details for a new Promotion Target record.)



Step 2 Enter / select Details for a new Promotion Target, using the field descriptions below as a guide.

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

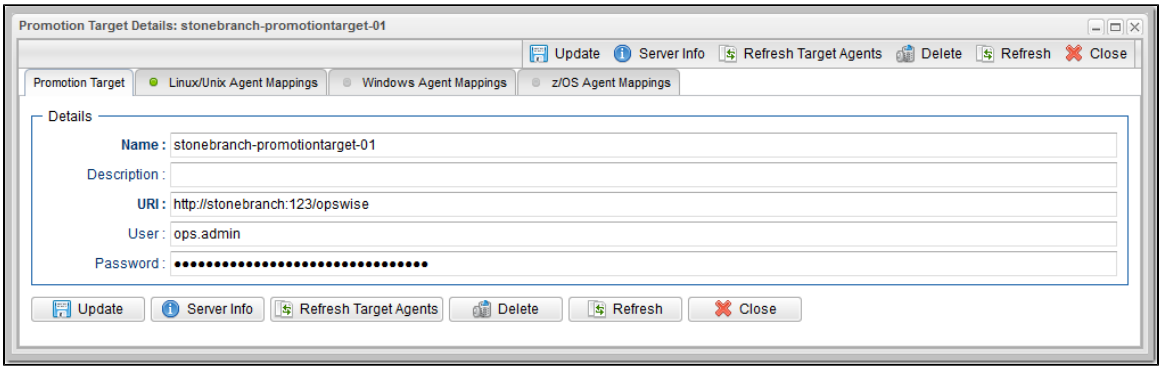
To display more of the Details fields on the screen, you can temporarily hide the list.

> **Note**
> If you view Promotion Target Details for an existing Promotion Target by clicking a Promotion Target in the list, and then want to create a new Promotion Target record, you must click the **New** button that displays above and below the Details.

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

Promotion Target Details

The following Promotion Target Details is for an existing Promotion Target. See the field descriptions, below, for a description of all fields that display in the Promotion Target Details.



Promotion Target Details Field Descriptions

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

Field Name	Description
Details	This section contains detailed information about the Promotion Target.
Name	Name for this Production Target.
Description	User-defined; description of this record. (Maximum = 200 characters.)
URI	Uniform Resource Identifier (URI) used to locate the Promotion Target cluster node. **Note** By default, the URI of the cluster node that you are logged into displays. You must change this to the URI of a target cluster node, using the default URI format.
User	Login ID on the target cluster node of Universal Controller.
Password	Login password on the target cluster node of Universal Controller.
Buttons	This section identifies the buttons displayed above and below the Promotion Target Details that let you perform various actions.
Save	Saves a new record in the Controller database.
Update	Saves updates to the record.
New	Displays empty (except for default values) Details for creating a new Promotion Target record.
Server Info	Displays a Remote Server Information pop-up that contains details about the cluster node identified in this record.
Refresh Target Agents	Accesses the specified Universal Controller server and fetches all Agent records. For details, see Specifying Agent Mapping.

Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this record.
Tabs	This section identifies the tabs across the top of the Promotion Target Details that provide access to additional information about the Bundle.
<Agent-type> Mappings	Lists all Agent mapping instructions between the source and target Controllers. See Specifying Agent Mapping.

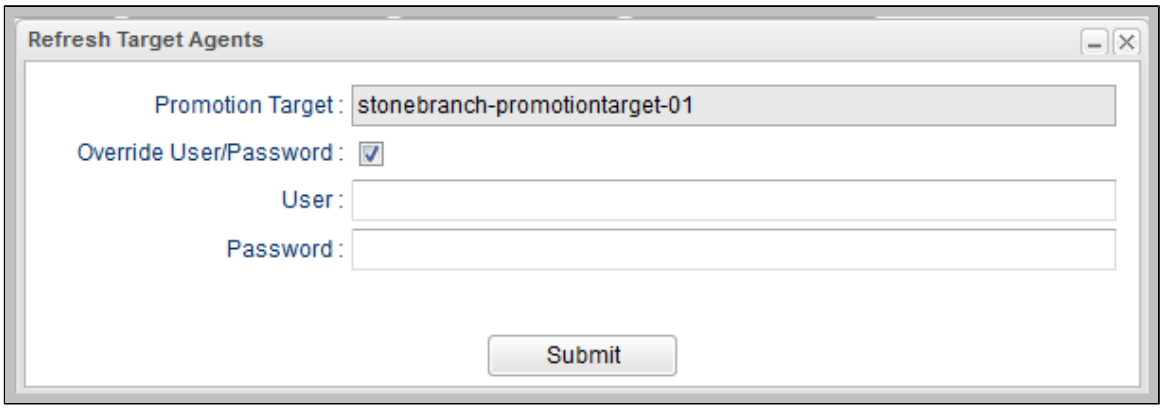
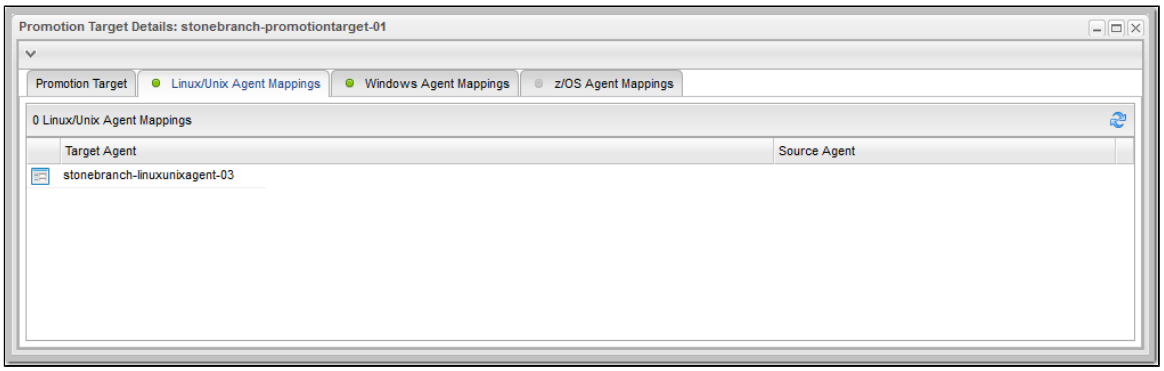
Specifying Agent Mapping

Specifying Agent Mapping

Because your source and target Controller machines may not have the same Agents, you must provide instructions to the Controller on how to map Agents on the source machine to Agents on the target machine.

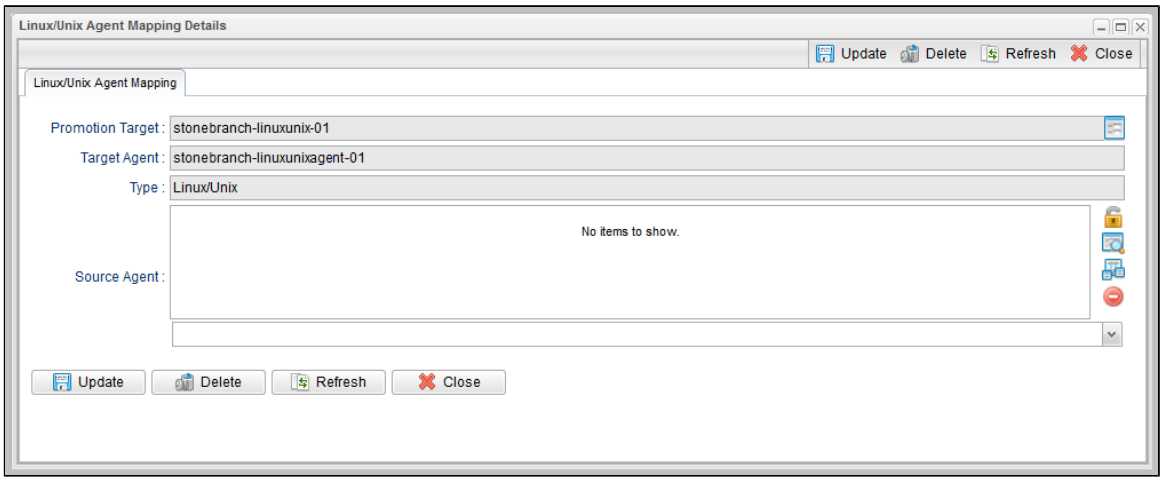
The process consists of:

- Instructing the Controller to fetch the list of Agents on the target machine.
- Manually identifying how each Agent should be mapped.

Step 1	Access the Action menu for a Promotion Target record.
Step 2	Click **Refresh Target Agents**. The Refresh Target Agents pop-up displays. 
Step 3	If the Promotion Target record does not provide the login credentials (User and Password) for the target machine, you must enter them. If the Promotion Target record does provide login credentials, but you want to override them, click **Override User/Password** and enter a **User** and **Password**.
Step 4	Click **Submit**. The Controller logs in to the target machine specified in the Promotion Target record **URI** field, accesses the appropriate tables, sorts the Agents into Agent types, and lists them in the appropriate <Agent-type> Mappings tab of the Promotion Target record.
Step 5	Open the Promotion Target record for which you have just refreshed Agents and click an Agent Mappings tab for which there are Agents on the target machine. The following example shows a list of Linux/Unix Agents on a target machine: 

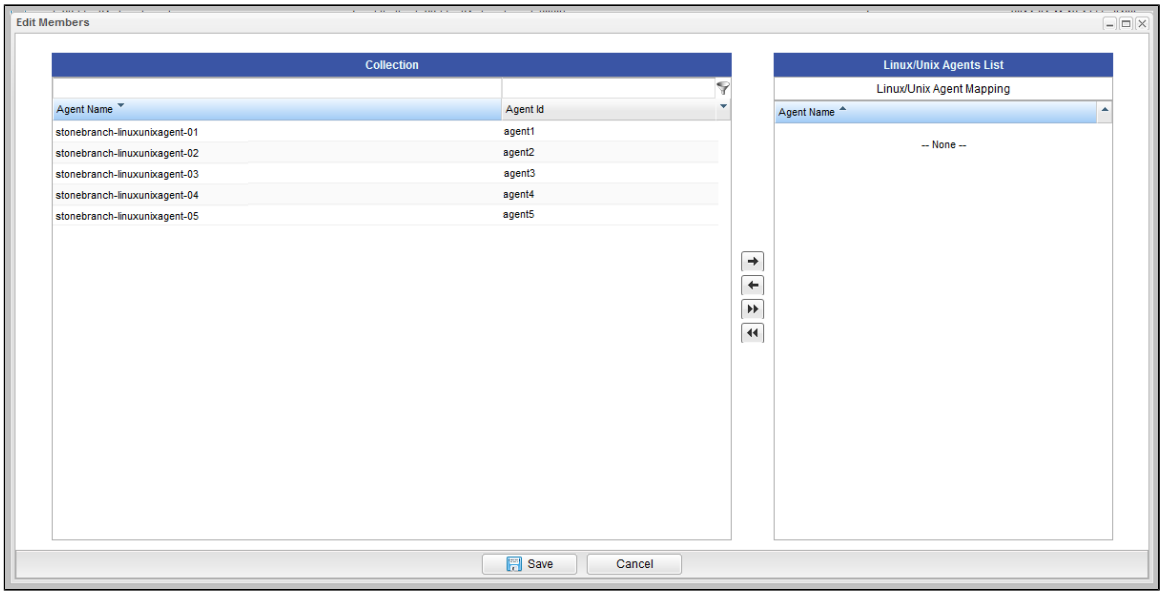
Step 6

Click the Details icon next to a Target Agent name to display Agent Mapping Details for that Target Agent.



Step 7

In the **Source Agent** field, click the **Add-Remove Multiple** icon to display an Edit Members dialog.



- The **Collection** window displays all Agents of this type on the source machine that have not been mapped to the selected Target Agent.
- The **Agents List** windows displays all Agents of this type on the source machine that have been mapped to the selected Target Agent.

Step 8

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

Step 9

To map an Agent, move the it from the **Collection** window to the **List** window:

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

To un-map an Agent, move it from the **List** window to the **Collection** window:

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

Step 10

Click **Save**.

Step 11	Repeat Steps 6 to 10 for each Agent listed in the selected Agent Mappings tab and for all Agents listed in any other Agent Mappings tabs. For best results, you should make sure all the Agents on your source machine are mapped to an Agent on the target machine. You can map as many source Agents to a single target Agent as needed. Once you have specified the mapping for all your source Agents, you can easily promote Bundles or individual records to this Promotion Target. When you promote records (via Bundle or individually) to the target machine, the target Agent will replace the source Agent.

Refresh Agent Error Messages

If your setup is incorrect, you may see the error message described below.

If you tried to refresh target Agents using a non-existent user or invalid password on the Promotion Target:

Error Message	Location
`GET http://NN.NNN.NN.N:8080/opswise/resources/agents/list returned a response status of 401 Unauthorized`	User interface on source machine
`2012-03-29-16:27:17:134  ERROR [http-8080-6] com.sun.jersey.api.client.UniformInterfaceException: GET returned a response status of 401 Unauthorized`	Universal Controller log on source machine
`2012-03-29-16:27:16:138  ERROR [http-8080-1] *** ERROR *** Login using Basic Authentication failed for: [userID]`	Universal Controller log on target machine

Promoting Bundles and Records to a Target

- Overview
- Promoting a Bundle
- Scheduling a Bundle Promotion
- Promoting One or More Individual Records
- Promotion Error Messages
- Promotion Audit Records

To use this feature, the user logged into the source Controller must have the ops_promotion_admin role.

Also, the user ID and password specified for the Promotion Target must be a valid user on the target Controller with the ops_promotion_admin role.

Overview

Promoting a Bundle means copying all of the records in a Bundle from a source Controller to a target Controller.

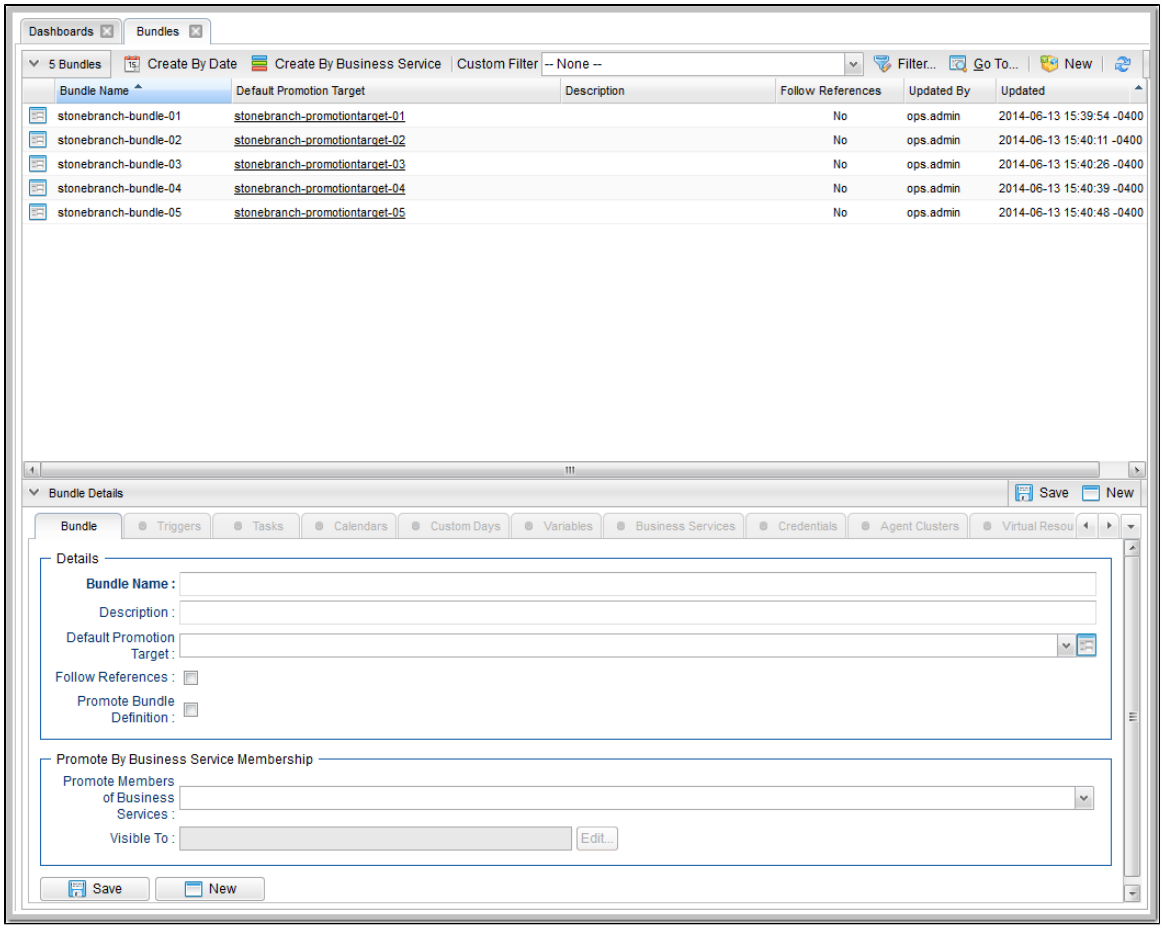
You also can promote one or more individual records without bundling them.

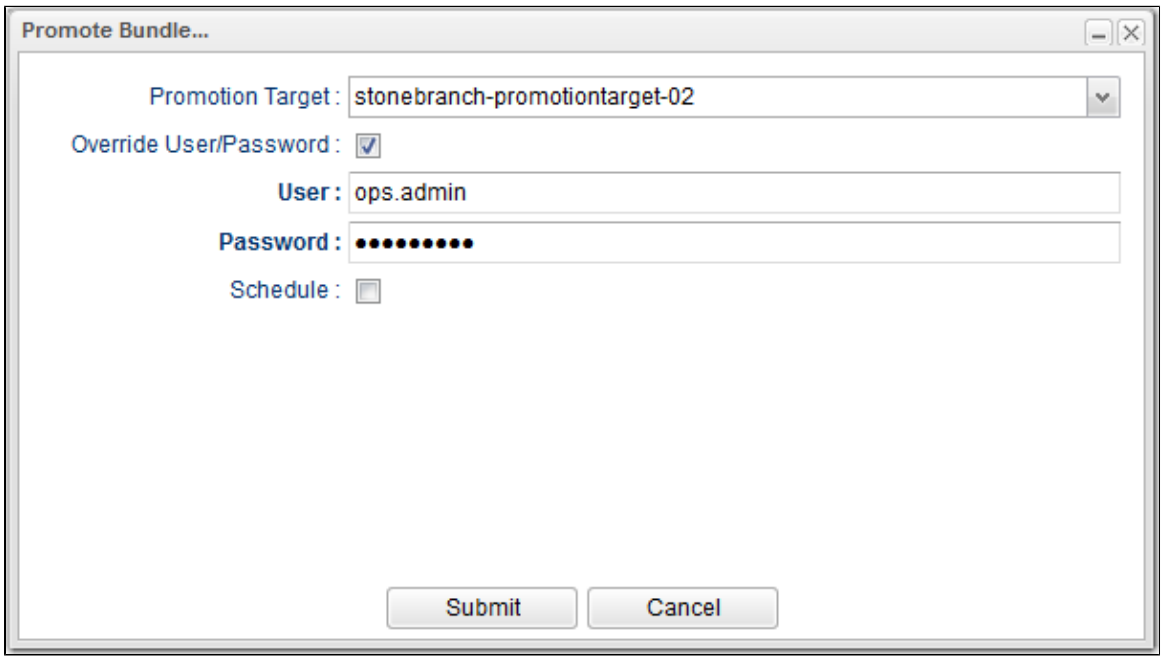
For every record in a bundle being promoted, and every record being promoted individually, the following associated data is always included in the promotion.

- If you promote a workflow, all of the tasks in the workflow are also promoted.
- If you promote a task (including a workflow), all variables, virtual resource dependencies, actions, notes, etc. are included in the promotion.
- If you promote an application, its associated start, stop, and query tasks are included in the promotion.
- If you promote a calendar, its associated custom days are included in the promotion.

Promoting a Bundle

Step 1 From the Bundles & Promotion navigation pane, select **Bundles**. The Bundles list displays.

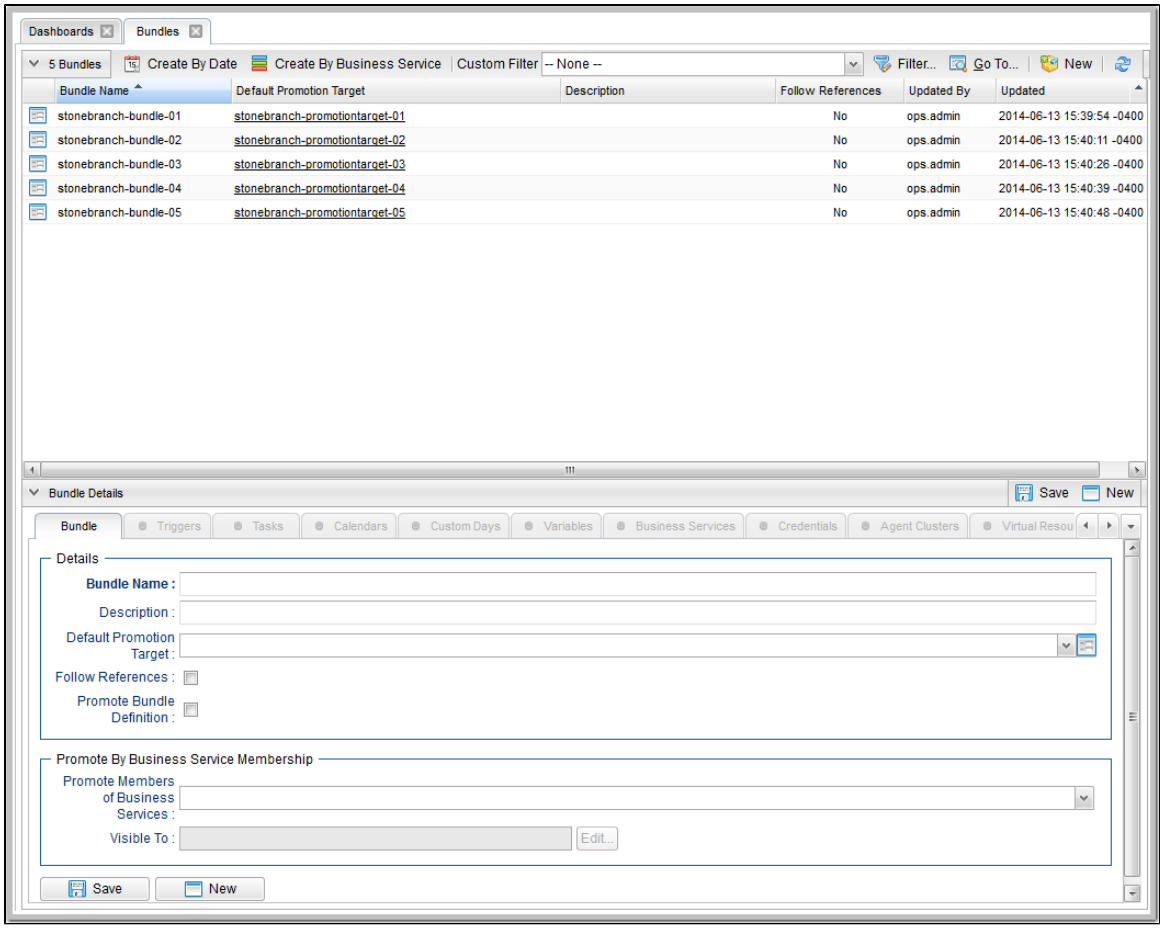


Step 2	Locate the Bundle that you want to promote and either: • Right-click the Bundle on the list to display an Action menu and click **Promote Bundle...**. • Open the Bundle record and either click the **Promote Bundle...** button or access the Action menu and click **Promote Bundle...**. The Promote Bundle pop-up dialog displays. 
Step 3	If the selected Bundle record specifies a Default Promotion Target, the name of that Target displays in the Promotion Target field. You can change the Promotion Target by selecting any Target from the drop-down list.
Step 4	The default login User and Password are provided from the selected Promotion Target record. If you want to override the defaults, click **Override User/Password** and type in the new information.
Step 5	If you want to schedule the promotion of the bundle at a later time, click **Schedule**.
Step 6	Click **Submit**. The Controller logs in to the target machine specified in the URI field of the Promotion Target record and copies the bundled records to the target Controller. Based on the specified Agent mapping, the target Agent replaces the source Agent where required. If you scheduled the promotion to be run at a later time, a record of the promotion is created in the Promotion Schedules list. **Note** The promotion process creates audit records on the source and target machine. On the target machine, the Controller also creates a Promotion History record. For details, see Promotion History and the Restore Option.

Scheduling a Bundle Promotion

You can create a promotion schedule for a Bundle so that it will automatically be promoted at a specified date and time.

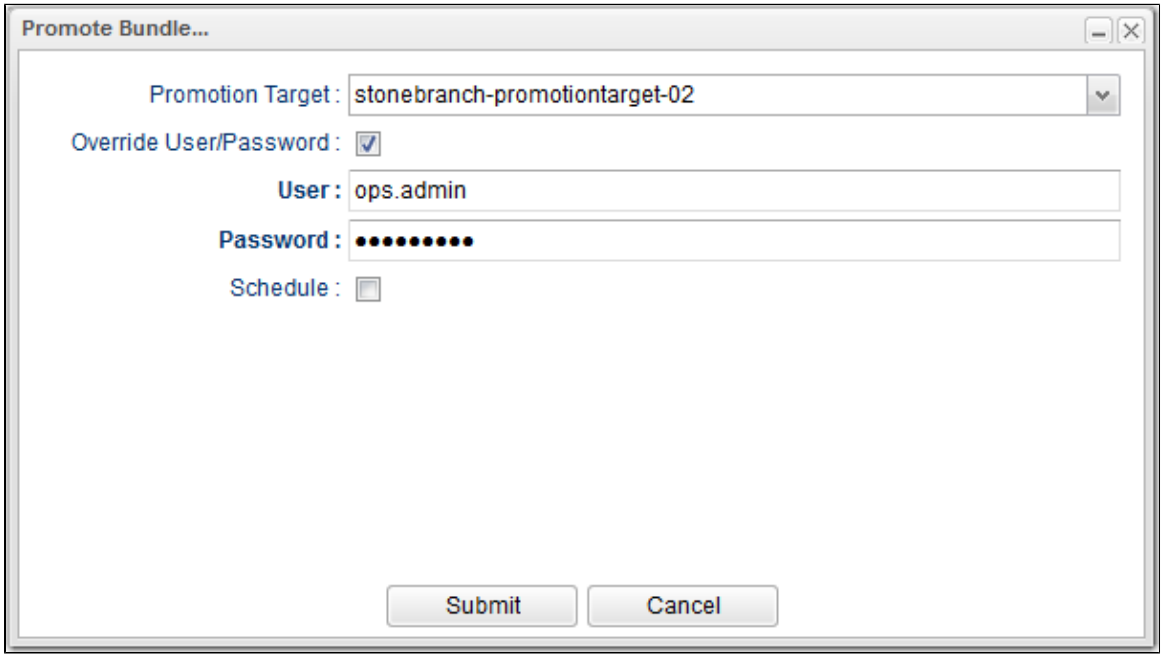
Step 1 From the Bundles & Promotion navigation pane, select **Bundles**. The Bundles list displays.



Step 2 Locate the Bundle that you want to promote and either:

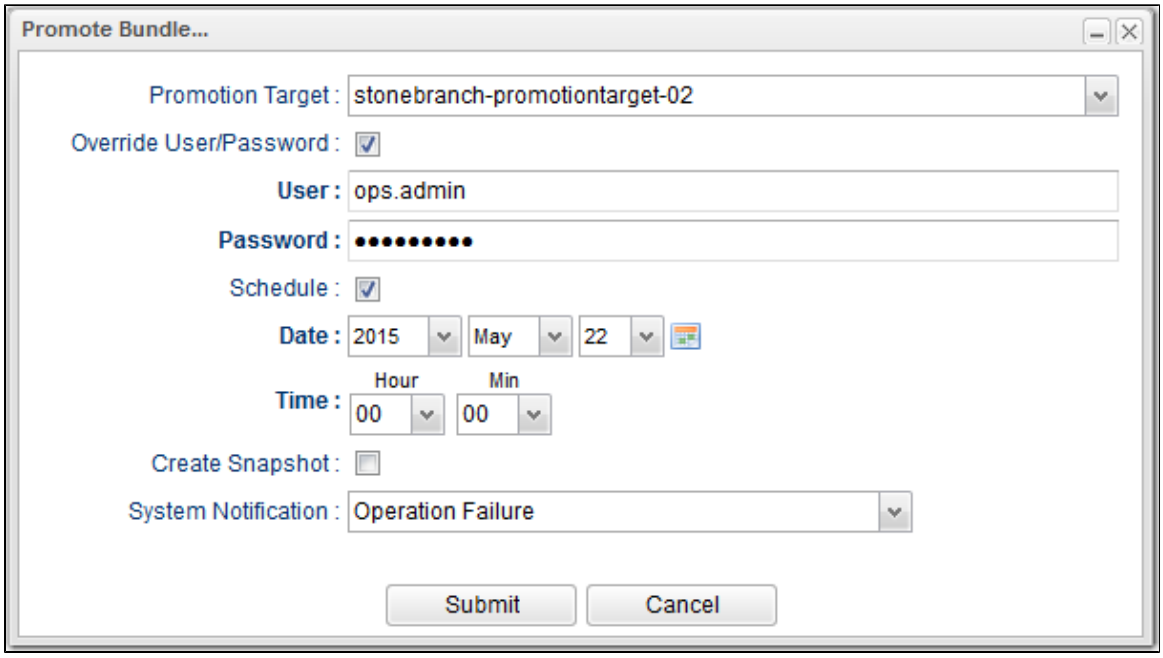
- Right-click the Bundle on the list to display an Action menu and click **Promote Bundle...**.
- Open the Bundle record and either click the **Promote Bundle...** button or access the Action menu and click **Promote Bundle...**.

The Promote Bundle pop-up dialog displays.



Step 3 The default login ID and password are provided from the Promotion Target record, if specified. If you want to override the default, click **Override User/Password** and type in the new information.

Step 4 Click **Schedule**. Additional fields display on the Promote Bundle pop-up dialog that let you create a promotion schedule.



Step 5 Select a **Date** and **Time** when you want the bundle to be promoted.

Step 6	If you want to schedule the promotion using the current Bundle records, select **Create Snapshot**. When you submit the schedule, the current Bundle records are collected immediately and promoted at the scheduled time. Any changes to Bundle records between the time that the promotion was scheduled and the time that the promotion was performed are not promoted. If you want to schedule the promotion using the Bundle records collected dynamically at the time of the scheduled promotion, do not select **Create Snapshot**.
Step 7	If you want to send a System Notification on the success and/or failure of the promotion, select one of the following from the **System Notification** drop-down list: • Operation Failure (default) • Operation Success/Failure • Operation Success If you do not want to send a System Notification, select – None --. **Note** Promotions without a specified Schedule will run immediately. Real-time notifications will be displayed in the Universal Automation Center Console, rather than through System Notifications.
Step 8	Click **Submit**. A record of the promotion schedule is listed in the Promotion Schedules list. After a scheduled promotion has completed, it will remain on the list (where it can be rescheduled to run again) for the number of days specified by the Promotion Schedule Retention Period In Days Universal Controller system property.

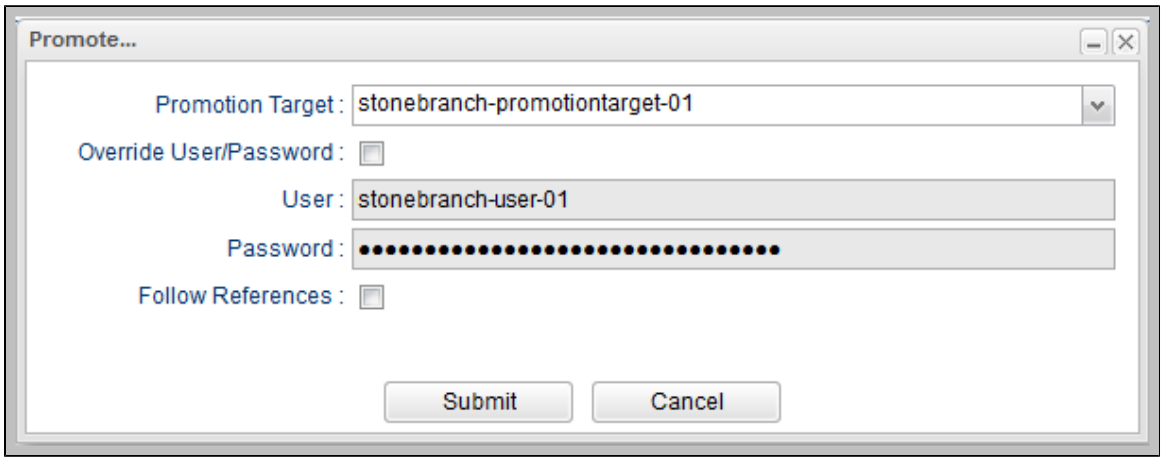
Promoting One or More Individual Records

The Controller also allows you to promote records of the same type to a target machine without going through the process of creating a Bundle.

Note
You can only create a Promotion Schedule for a Bundle of records, not one or more individual records.

Step 1	Display the records list for the type of record that you want to promote.

Step 2	Select the record(s) that you want to promote.
	
	• To promote a single record, either:
	  • Right-click the record to display an Action menu, and then click **Promote**.
	  • Display the record Details, right-click the Details to display an Action menu, and then click **Promote**.
	• To promote multiple records:
	  • Ctrl-click the records you want to promote, right-click any of the selected records to display an Action menu, and then click **Promote**.

Step 3	The Promote dialog displays, prompting you to select the Promotion Target from a drop-down list. Select the target. 
Step 4	The default login ID and password will be provided from the Promotion Target record. If you want to override the default, click **Override User/Password** and type in the new information.
Step 5	Select **Follow References** if you want to dynamically include items that are referenced by these records. (See Objects Promoted When Follow References is Selected or Not Selected.)
Step 6	Click **Submit**. The Controller logs in to the target machine specified in the URI field of the Promotion Target Record and copies the selected records to the target machine.

This process creates audit records on the source and target machines. On the target machine, the Controller also creates a Promotion History record.

Promotion Error Messages

If your set-up is incorrect, you may see the following error messages.

If you tried to promote a bundle or record using a non-existent user or invalid password on the Promotion Target:

Error Message	Location

`Command Promote Bundle failed to execute:`
`POST`
`http://NN.NNN.NN.N:8080/opswise/resources/bundle/promote`
`returned a response status of 401 Unauthorized.`
	User interface and Controller log on source machine

`2012-03-29-16:41:36:185  ERROR [http-8080-4] *** ERROR ***` `Login using Basic Authentication failed for: [userID]`	Controller log on target machine

If you tried to promote a Bundle or record using a valid user/password on the Promotion Record that does not have the ops_promotion_admin role:

Error Message	Location

`Command Promote Bundle failed to execute: [Command Accept Bundle prohibited due to security constraints.]`	User interface on source machine

Promotion Audit Records

Whenever a Bundle or an individual record is promoted to a target machine, the Controller creates audit records on both the source and target machines.

On the source machine, each time you promote a record or a Bundle, the Controller creates a single audit record for that event. If you promoted a Bundle, the audit message is PROMOTE_Bundle; if you promoted a single record or multiple records, the audit message is PROMOTE. An example audit record is shown below for a Bundle called Adjustments Workflow:

On the target machine, the Controller creates an ACCEPT_BUNDLE audit record, along with "child" audit records associated with that promotion (either record[s] or a Bundle). These may include UPDATE commands for records that existed on the target already and CREATE commands for records that did not previously exist.

For example, if you promote an updated Calendar record, the Controller creates an ACCEPT_BUNDLE audit for the promotion, and UPDATE audit records for the Calendar and each of the Custom Days used in the Calendar.

For detailed information on audit record, see Audits.

Promotion Schedules

- Overview
- Viewing Promotion Schedule Details
- Promotion Schedule Details Field Descriptions
- Modifying and/or Rescheduling a Promotion Schedule
- Modifying and/or Rescheduling a Successfully Promoted Promotion Schedule
- Cancelling a Promotion Schedule

Overview

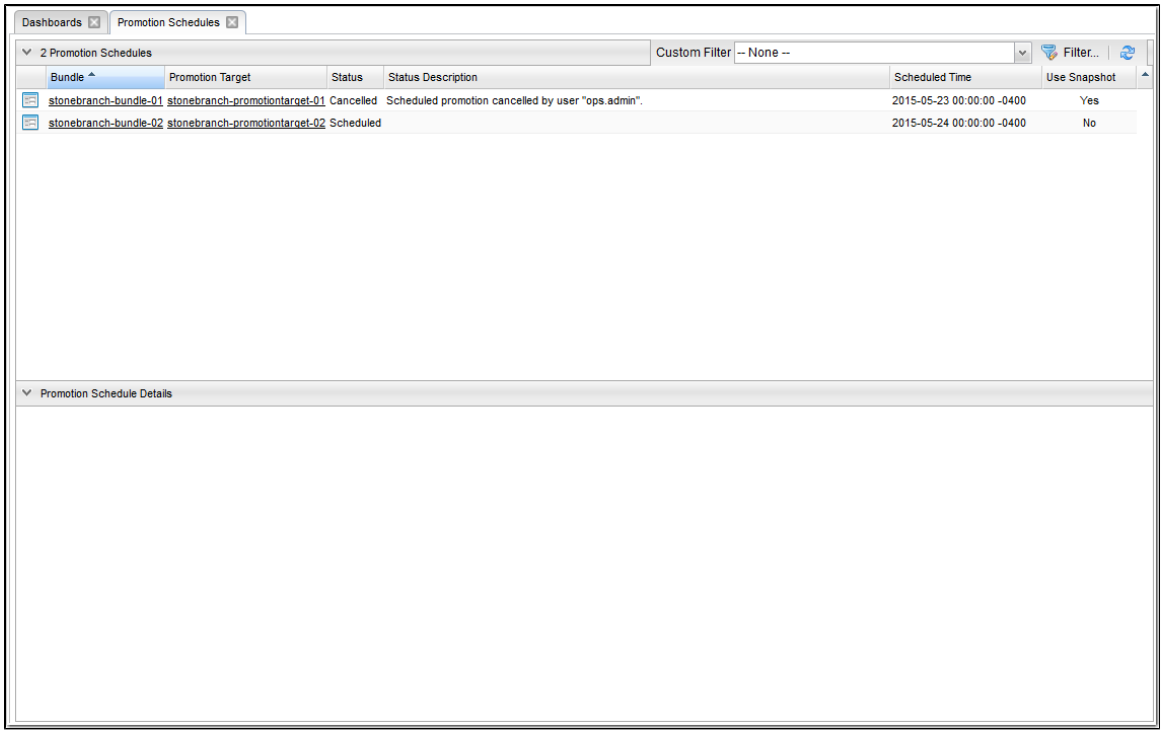
If you schedule a promotion to be run at a later time on the Promote Bundle... dialog, the Controller creates a record for that promotion.

The Promotion Schedules list identifies all scheduled promotions.

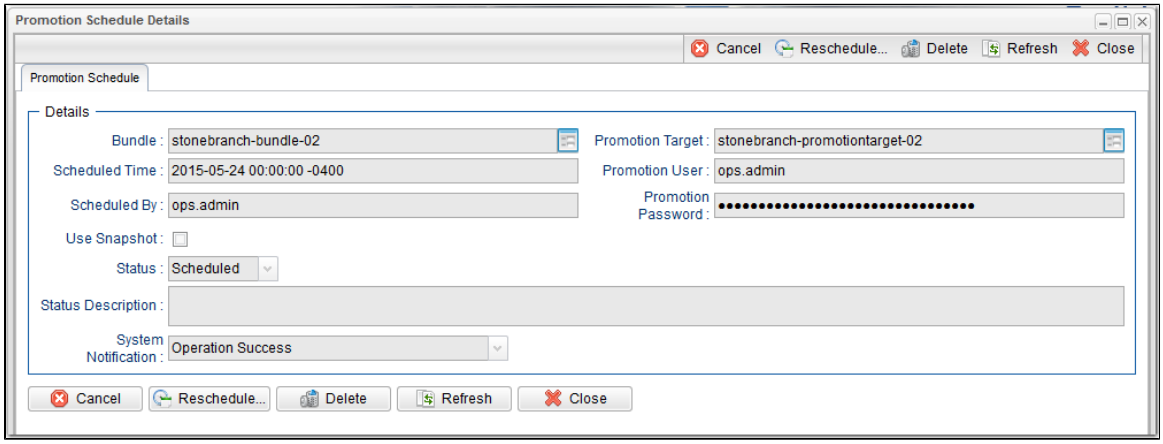
It also lists all scheduled promotions that have completed (where they can be rescheduled to run again) for the number of days specified by the Promotion Schedule Retention Period In Days Universal Controller system property.

Viewing Promotion Schedule Details

Step 1 From the Bundles & Promotion navigation pane, select **Promotion Schedules**. The Promotion Schedules list displays a list of all Bundles that have been scheduled for promotion.



Step 2 Click the Details icon next to a Promotion Schedule in the list, or click anywhere in the Promotion Schedule row, to display Details for that Promotion Schedule.



Although all of the fields in the Promotion Schedule Details display as read-only, you change the values of all fields (except **Status** and **Status Description**) by clicking the **Reschedule...** button (see Modifying and/or Rescheduling a Promotion Schedule, below).

See the field descriptions, below, for details about all fields in the Promotion Schedule Details.

Promotion Schedule Details Field Descriptions

The following table describes the fields and buttons in the Promotion Schedule Details.

Field Name	Description
Details	This section contains detailed information about the scheduled promotion.
Bundle	Name of the Bundle scheduled for promotion. You can click the icon next to the Bundle name to view (and edit) the Details for that Bundle.
Scheduled Time	Date and time the bundle is scheduled for promotion.
Schedule By	User Id of the user that scheduled the promotion of the bundle.
Promotion Target	Cluster Node of a Universal Controller to which the Bundle is scheduled for promotion. You can click the icon next to the Promotion Target name to view (and edit) the Details for that Promotion Target.
Promotion User	User Id of the promotion user that the scheduled promotion will use to promote the bundle.
Promotion Password	Password of the promotion user that the scheduled promotion will use to promote the bundle.
Use Snapshot	Indication of whether or not the promotion is scheduled to be performed using a snapshot of the Bundle records taken at the time the promotion was scheduled.
Status	System-defined; Current status of this Promotion Schedule. Values: • Scheduled • Cancelled • Running • Failure • Promoted
Status Description	System-defined; Description of the current **Status**.

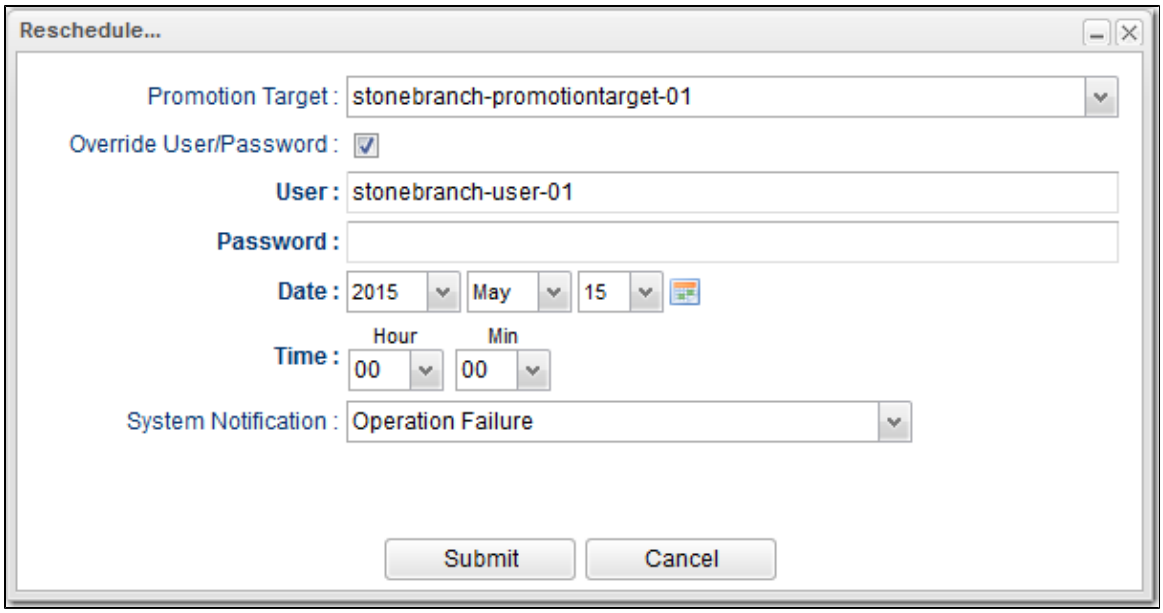
System Notification	Options for when a System Notification will be sent. Options: • - - None - - • Operation Failure • Operation Success/Failure • Operation Success
Buttons	This section identifies the buttons displayed above and below the Promotion Schedule Details that let you perform various actions.
Cancel	Changes a scheduled promotion **Status** from Scheduled to Cancelled.
Reschedule...	Allows you to edit the Promotion Schedule Details (see Modifying and/or Rescheduling a Promotion Schedule, below).
Delete	Cancels and deletes the Promotion Schedule; **Delete** is prohibited while Status is Running.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of these Details.

Modifying and/or Rescheduling a Promotion Schedule

You can modify and/or reschedule a Scheduled, Cancelled, or Failed promotion schedule.

For modifying and/or rescheduling a successfully promoted promotion schedule, see Modifying and/or Rescheduling a Successfully Promoted Promotion Schedule.

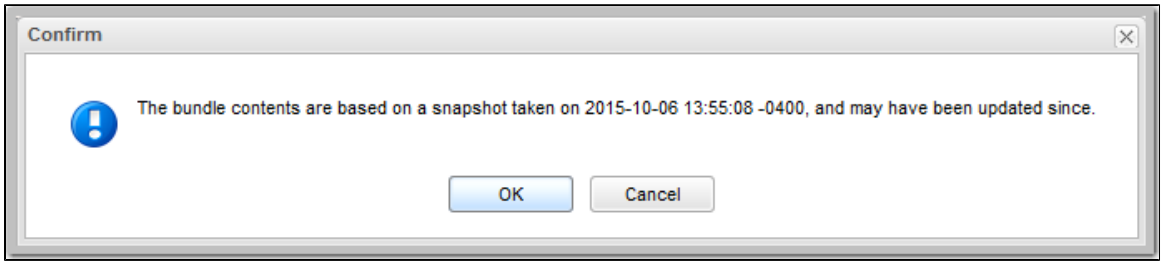
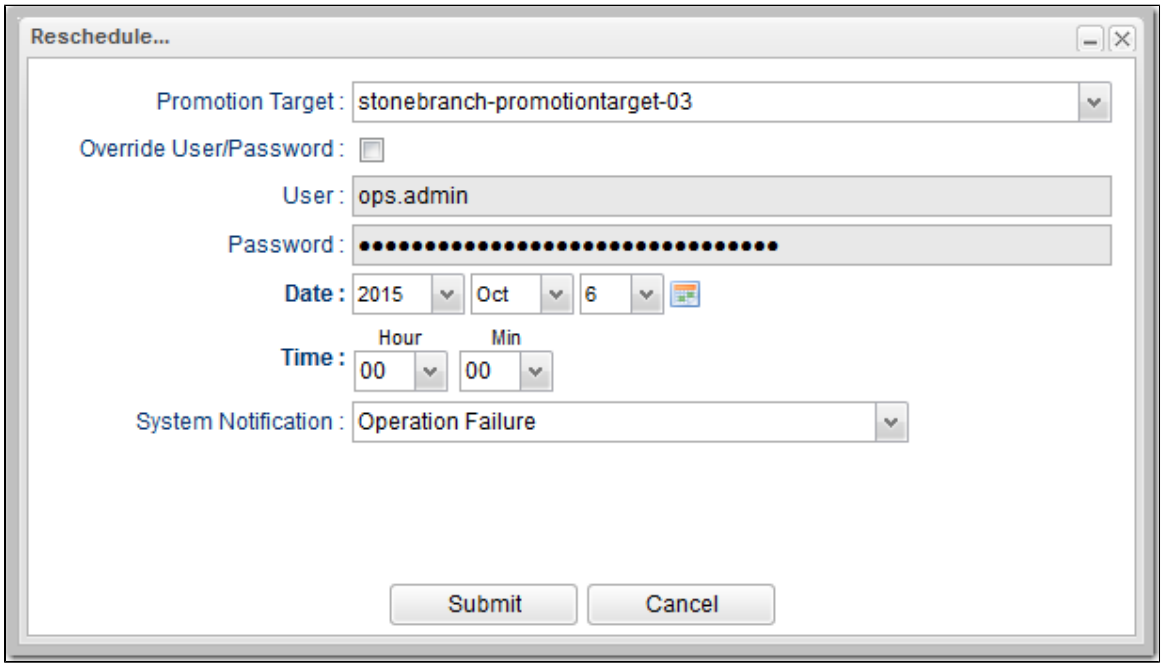
Step 1	From the Bundles & Promotion navigation pane, select **Promotion Schedules**. The Promotion Schedules list displays a list of all Bundles that have been scheduled for promotion.

Step 2	Display an action menu for a Promotion Schedule and click **Reschedule...**, or open a Promotion Schedule record and either: • Click the **Reschedule...** button in the Promotion Schedule Details. • Display an action menu for the Promotion Schedule and click **Reschedule...**. The **Reschedule...** pop-up dialog displays.  By default, the following Details for the cancelled Promotion Schedule are changed on the **Reschedule...** pop-up dialog when it displays: • **Date** is reset to the current date. • **Time** is reset to 00:00. The **Reschedule...** pop-up dialog will prompt for the User/Password fields if the promotion was originally scheduled with the Override User/Password option, or if the Promotion Target does not have a default User and/or Password defined.
Step 3	Enter / reenter new specifications for the Promotion Schedule.
Step 4	Click the **Submit** button to apply your re-scheduling changes to the Promotion Schedule. The status of the Promotion Schedule automatically changes to Scheduled (or remains in the Scheduled status) when you submit rescheduling changes.

Modifying and/or Rescheduling a Successfully Promoted Promotion Schedule

You can modify and/or reschedule a successfully promoted promotion schedule only if the promotion schedule was specified to use a snapshot.

Step 1	From the Bundles & Promotion navigation pane, select **Promotion Schedules**. The Promotion Schedules list displays a list of all Bundles that have been scheduled for promotion. You can identify successfully promoted snapshot Bundles by the following columns on the list: • Status = Promoted • Use Snapshot = Yes

Step 2	Display an action menu for a Promotion Schedule on the list and click **Reschedule...**, or open the Promotion Schedule and either: • Click the **Reschedule...** button in the Promotion Schedule Details. • Display an action menu for the Promotion Schedule and click **Reschedule...**. A confirmation pop-up displays. For example: 
Step 3	Click **OK** to confirm that you want to re-promote the selected snapshot Bundle. The **Reschedule...** pop-up dialog displays:  By default, the following Details for the Promotion Schedule are changed on the **Reschedule...** pop-up dialog when it displays: • **Date** is reset to the current date. • **Time** is reset to 00:00. The **Reschedule...** pop-up dialog will prompt for the User/Password fields if the promotion was originally scheduled with the Override User/Password option, or if the Promotion Target does not have a default User and/or Password defined.
Step 4	Enter / reenter new specifications for the Promotion Schedule.
Step 5	Click the **Submit** button to apply your re-scheduling changes to the Promotion Schedule. The status of the Promotion Schedule automatically changes from **Promoted** to **Scheduled** when you submit rescheduling changes.

Cancelling a Promotion Schedule

You can cancel a Promotion Schedule without deleting its Promotion Schedule record.

Cancelled Promotion Schedule records will continue to be listed on the Promotion Schedules list.

Step 1	From the Bundles & Promotion navigation pane, select **Promotion Schedules**. The Promotion Schedules list displays a list of all Bundles that have been scheduled for promotion.
Step 2	Display an action menu for a Promotion Schedule on the list and click **Cancel**, or open the Promotion Schedule and either: • Click the **Cancel** button. • Display an action menu for the Promotion Schedule and click **Cancel**. The **Status** of the Promotion Schedule in the Promotion Schedule list will change from **Scheduled** to **Cancelled**, and a **Status Description** for that cancelled Promotion Schedule will display.

To reschedule a **Cancelled** Promotion Schedule, see Modifying and/or Rescheduling a Promotion Schedule.

Promotion History and the Restore Option

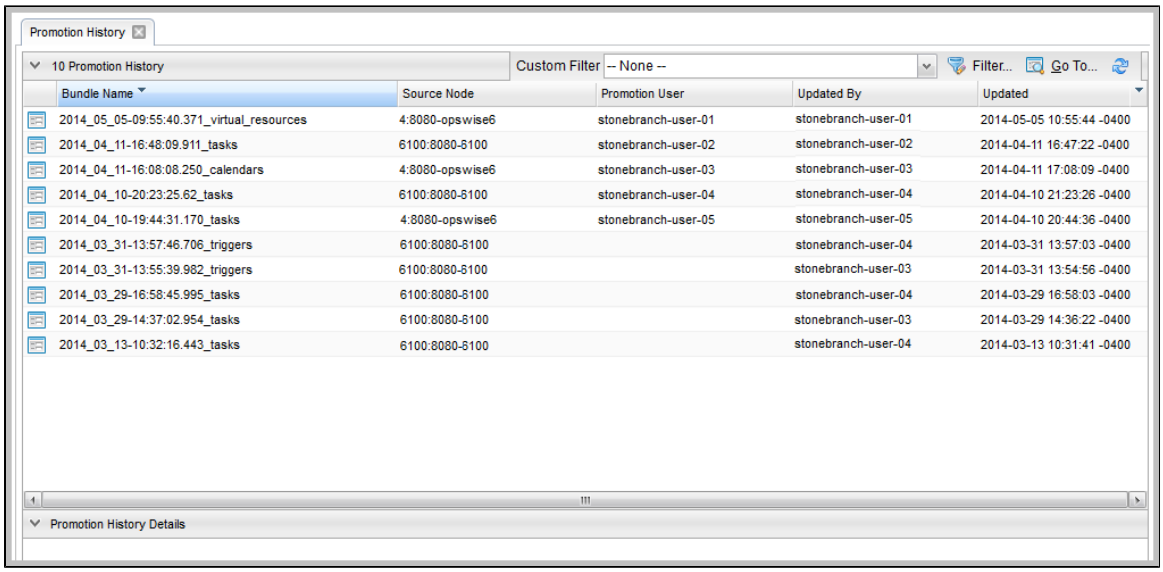
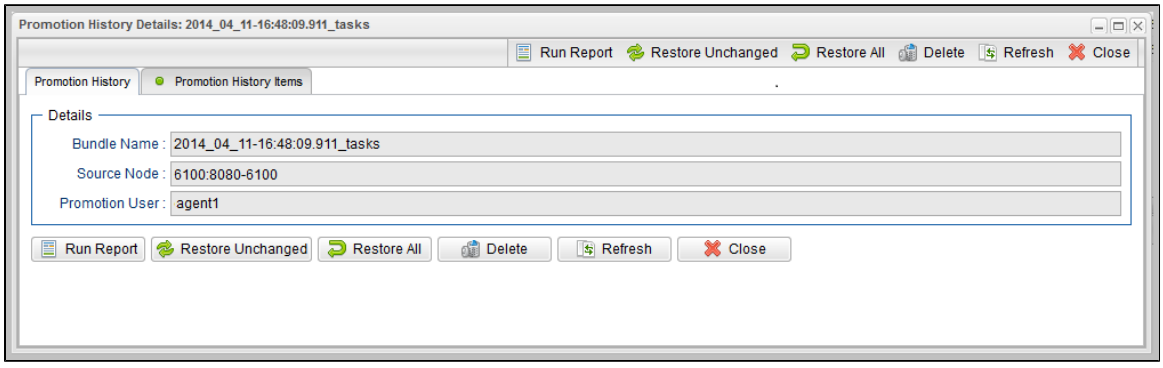
- Overview
- Accessing Promotion History Records
- Promotion History Details Field Descriptions

Overview

The Controller creates a Promotion History record each time a Bundle (or record) is promoted to a target Controller.

Accessing Promotion History Records

To access a Promotion History record on the target Controller:

Step 1	From the Bundles & Promotion navigation pane, select **Promotion History**. The **Promotion History** list displays. 
Step 2	Click anywhere in the row of a Bundle on the list, or click the icon next to the **Bundle Name** of a Bundle, to display Promotion History Details for that Bundle. 
Step 3	To see a list of all records included in the promoted Bundle, click the **Promotion History Items** tab.
Step 4	You can restore records to the state they were in before the promotion. This applies only to records being updated by the promotion, not those being created by a promotion. See the field descriptions below for details.

Promotion History Details Field Descriptions

The fields on the Promotion History Details are system-supplied and read-only.

Field Name	Description
Details	This section contains detailed information about the promoted Bundle (or record).
Bundle Name	Name of this record.
Source Node	Machine name or URI of the machine where the source Universal Controller system is running.
Promotion User	User ID of the user who promoted the bundle or record(s).
Buttons	This section identifies the buttons displayed above and below the Promotion History Details that let you perform various actions.
Run Report button	Generates a one page summary of the contents of the bundle. See Generating a Bundle Report.
Restore Unchanged	For records that already existed on the target server, you can restore them to their state prior to the promotion. The **Restore Unchanged** button restores only those records that have not been changed since the promotion updated the record. For records that were created on the target machine by the promotion, no changes will occur since no previous version exists.
Restore All	For records that already existed on the target server, you can restore them to their state prior to the promotion. The **Restore All** button restores all records that were updated by the promotion, including records that were modified since the promotion. For records that were created on the target machine by the promotion, no changes will occur since no previous version exists.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this record.
Tabs	This section identifies the tabs across the top of the Promotion History Details that provide access to additional information about the promotion.
Promotion History Items	Lists all the records promoted as part of this Bundle. Each item in the list provides the name and type of the record, the latest version number on the target, the previous version number on the target, and the source version number.

Objects Promoted When Follow References is Selected or Not Selected

Objects Promoted When Follow References is Selected or Not Selected

The following tables identify the objects that are included in a Bundle Promotion when:

- Follow References is selected for the promotion.
- Follow References is not selected for the promotion.

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
Agent Clusters	none	none

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
Applications	• Application Control Tasks (both system-generated and custom Application Control Tasks) • Business Services • Credentials	• Application Control Tasks (system-generated Application Control Tasks)

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
Business Services	none	none

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
Calendars	• Business Services • Custom Days	• Custom Days

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
Credentials	• Business Services	none

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
Custom Days	none	none

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
Database Connections	• Credentials	none

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
Email Connections	none	none

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
Email Templates	• Email Connections	none

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
SAP Connections	none	none

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
Scripts	• Business Services	none

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
SNMP Managers	none	none

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected

Tasks	• Action: Email Notification - Email Connections • Action: Email Notification - Email Templates • Action: SNMP Notification - SNMP Managers • Action: System Operation = Set Virtual Resource Limit - Virtual Resources • Action: System Operation = Suspend/Resume Agent Cluster - Agent Clusters • Action: System Operation = Suspend/Resume Agent Cluster Membership - Agent Clusters • Action: System Operation = Set Agent Cluster Execution Limit - Agent Clusters • Action: System Operation = Run Task Instance Command - Tasks • Agent Clusters • Applications (for Application Control Tasks) • Business Services • Child Tasks (if Task is a Workflow) • Credentials (Note: Some task types can contain multiple Credentials.) • Database Connections (for SQL and Stored Procedure Tasks) • Default Calendars (if Task is a Workflow) • Email Connections (if Task is an Email Task) • Email Templates (if Task is an Email Task) • Mutually Exclusive Tasks (Direct) • Run Criteria - Custom Days Choice (if Task is a Workflow) • Run Criteria - System Calendar (if there is no Default Calendar, the Task is a Workflow, and Run Criteria uses Custom Day Choice) • SAP Connections (for SAP Tasks) • Scripts • Step Action: System Operation = Set Virtual Resource Limit - Virtual Resources (if Task is a Workflow) • Step Action: System Operation = Suspend/Resume Agent Cluster - Agent Clusters (if Task is a Workflow) • Step Action: System Operation = Suspend/Resume Agent Cluster Membership - Agent Clusters (if Task is a Workflow) • Step Action: System Operation = Set Agent Cluster Execution Limit - Agent Clusters (if Task is a Workflow) • Step Action: System Operation = Task Instance Command - Tasks (if Task is a Workflow) • Task to Monitor (if Task is a Task Monitor Task]) • Virtual Resources	Child Tasks (if Task is a Workflow)

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
Triggers	• Business Services • Calendars • Tasks	none

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
Variables	• Business Services	none

Record Type	Objects Promoted if Follow References is Selected	Objects Promoted if Follow References is Not Selected
Virtual Resources	• Business Services	none