

# **Administration**

Universal Controller 7.5.x

© 2024 by Stonebranch, Inc. All Rights Reserved.

# Table of Contents

1	Properties .....	11
2	Configuration.....	12
3	Ports Configuration.....	13
4	Webhooks.....	14
5	Administration Overview .....	15
5.1	Universal Controller Administration.....	15
5.2	Universal Controller Security .....	16
6	Ports Configuration.....	17
6.1	Ports Configuration.....	17
7	Audits.....	18
7.1	Overview .....	18
7.2	Displaying Audits .....	18
7.2.1	Audit Details Field Descriptions.....	19
8	Business Services .....	22
8.1	Overview .....	22
8.1.1	Record Types for Business Services .....	22
8.2	Creating Business Services.....	22
8.2.1	Business Service Details .....	23
8.2.2	Business Service Details Field Descriptions .....	24
8.3	Business Service Membership Considerations for Create, Read, Update, Delete, and Execute.....	25
8.3.1	Create .....	25
8.3.2	Read.....	25
8.3.3	Update .....	26
8.3.4	Delete.....	26
8.3.5	Execute .....	26
9	Data Backup - Purge .....	27
9.1	Overview .....	27
9.2	Purge Rules for Task Instances .....	27

9.2.1	Task Instance Status .....	27
9.2.2	Purging by Retention Duration .....	28
9.3	Creating a Data Backup / Purge Record.....	28
9.3.1	Data Backup / Purge Details .....	29
9.3.2	Data Backup / Purge Details Field Descriptions .....	30
9.4	Running a Data Backup / Purge Manually .....	32
9.5	Importing Backed Up / Purged Data into the Controller.....	32
9.6	Returning Virtual Resources for Purged Task Instances in Failure Status .....	32
10	<b>Filters .....</b>	<b>33</b>
10.1	Overview .....	33
10.2	Creating a Filter .....	33
10.3	Global Filters .....	34
10.3.1	Filter Fields .....	34
10.3.2	Supported Record Types .....	35
10.4	Applying a Filter .....	35
10.4.1	Applying a New Filter .....	35
10.4.2	Applying an Existing Filter .....	36
10.5	Saving a Filter.....	36
10.6	Pinning a Filter .....	36
10.6.1	Unpinning a Filter .....	37
10.7	Filters List.....	38
10.8	Filter Details Field Descriptions .....	39
10.9	Unresolved and Variable Fields in a Filter List .....	40
10.9.1	Examples .....	40
10.10	Go To Filter .....	42
11	<b>TrustStore.....</b>	<b>43</b>
11.1	Overview .....	43
11.2	Configuring Universal Controller.....	43
11.3	Importing Server Certificates .....	43
12	<b>TrustStore Settings.....</b>	<b>44</b>
12.1	Overview .....	44

12.2	TrustStore Settings Details .....	44
12.2.1	TrustStore Settings Field Descriptions.....	45
12.3	Certificate Details .....	46
12.3.1	Certificate Details Field Description .....	46
12.4	Importing a Trusted Certificate.....	47
12.5	Examining a Certificate .....	48
12.6	Viewing Certificate Details for a Trusted Certificate Entry.....	49
12.7	Deleting a TrustStore Entry .....	50
13	LDAP Settings .....	52
13.1	Overview .....	52
13.2	Credentials for Running Tasks Authentication .....	52
13.3	User Login Authentication.....	53
13.4	LDAP Settings Field Descriptions .....	53
13.5	Mappings Tab .....	55
13.5.1	Mappings Tab Column Descriptions .....	56
13.5.2	Mapping Details .....	56
13.6	Best Practices .....	57
13.6.1	Determining your User OUs and Group OUs.....	57
13.6.2	Customizing Users and Groups Lists to see DN of LDAP Synchronized Users and Groups .....	58
13.6.3	LDAP Server Operations .....	58
13.6.4	LDAP Settings Fields .....	58
13.7	SSL/TLS Secured LDAP (LDAPS).....	61
14	Password Settings .....	62
14.1	Overview .....	62
14.2	Password Settings Details .....	62
14.3	Password Settings Field Descriptions.....	63
15	Personal Access Token .....	65
15.1	Overview .....	65
15.2	Creating a Personal Access Token.....	65
15.3	Personal Access Token Details .....	66

16	Properties .....	68
16.1	Overview .....	68
16.2	Universal Controller Start-up Properties (uc.properties) .....	68
16.2.1	Secrets Provider Properties .....	86
16.3	Universal Controller System Properties.....	89
16.3.1	Overriding Universal Controller System Properties .....	116
16.3.2	Deprecated System Properties .....	116
16.4	Command Line Interface (CLI) Properties .....	118
17	Server Operations .....	120
17.1	Overview .....	120
17.2	Running a Server Operation.....	120
17.3	Server Operation Completion .....	120
17.4	Server Operation Status.....	121
17.5	Server Operation Timeout .....	121
17.6	Server Operations Descriptions .....	122
17.7	Universal Controller Database Tables .....	128
18	Single Sign-On Settings .....	142
18.1	Overview .....	142
18.2	Terminology .....	142
18.3	Single Sign-On Login.....	142
18.3.1	Service Provider-Initiated Login .....	143
18.3.2	Identity Provider-Initiated Login .....	143
18.3.3	Action URLs .....	143
18.3.4	Session Expired.....	143
18.3.5	Administrator Account .....	145
18.4	Single Logout .....	145
18.4.1	User Sessions.....	146
18.5	User Provisioning .....	146
18.5.1	User Attribute Mapping .....	147
18.5.2	User Field Defaults.....	147
18.5.3	Group Membership Attribute Mapping.....	147

18.6	SAML Configuration .....	148
18.6.1	Service Provider Metadata .....	148
18.6.2	SAML Endpoints.....	148
18.6.3	Identity Provider Metadata.....	148
18.6.4	SAML KeyStore .....	149
18.6.5	Java Cryptography Extension (JCE) .....	150
18.6.6	Debugging .....	150
18.7	Single Sign-On Settings .....	150
18.7.1	Single Sign-On Settings Field Descriptions .....	151
18.7.2	Default Configuration .....	153
18.7.3	Security .....	153
18.7.4	Bulk Import/Export.....	153
18.8	Troubleshooting.....	153
18.8.1	NameID .....	153
18.8.2	Login Errors .....	154
19	Universal Templates .....	156
19.1	Universal Templates .....	156
19.2	Universal Templates Overview .....	156
19.2.1	Introduction .....	156
19.2.2	Universal Template Scripts .....	157
19.2.3	Universal Template Fields .....	157
19.2.4	Universal Template Variables .....	157
19.2.5	Setting Up Universal Templates and Tasks .....	158
19.2.6	Importing / Exporting Universal Templates .....	159
19.2.7	List Import/Export.....	160
19.2.8	Restrictions on Universal Template Changes .....	160
19.3	Creating a Universal Template.....	163
19.3.1	Overview .....	163
19.3.2	Creating a Universal Template.....	164
19.3.3	Creating Universal Template Fields.....	172
19.3.4	Creating Universal Template Field Choices .....	181

19.3.5	Creating Commands.....	184
19.3.6	Creating Event Templates .....	185
19.4	Copying Universal Templates .....	187
19.4.1	Overview .....	188
19.4.2	Copying One or More Universal Templates from a Universal Templates List ....	188
19.4.3	Copying a Universal Template from the Universal Template Details .....	189
19.4.4	Copy Permissions .....	189
<b>20</b>	<b>Universal Event Templates.....</b>	<b>190</b>
20.1	Universal Event Templates.....	190
20.1.1	Global Universal Events .....	190
20.1.2	Local Universal Events.....	191
20.1.3	Global and Local Universal Events.....	192
20.2	Creating a Universal Event Template.....	193
20.2.1	Universal Event Template Details .....	194
20.2.2	Universal Event Template Details Field Descriptions .....	195
20.3	Pre-Defined Global Universal Event .....	198
20.3.1	System Property Changed Universal Event.....	199
20.3.2	Agent Changed Universal Event.....	199
20.3.3	Task Status Changed Universal Event.....	201
<b>21</b>	<b>Users and Groups .....</b>	<b>203</b>
21.1	Overview .....	203
21.2	Default Users and Groups .....	203
21.2.1	Default User.....	203
21.2.2	Default Groups .....	203
21.3	Adding a User.....	203
21.3.1	User Details .....	204
21.3.2	User Details Field Descriptions .....	206
21.4	Adding a Group .....	208
21.4.1	Group Details.....	209
21.4.2	Group Details Field Descriptions.....	210
21.5	Additional Details.....	212

21.6	Assigning Users to Groups.....	212
21.7	Navigation Visibility for Users and Groups.....	214
21.8	Deleting a User .....	214
21.9	Impersonating a User .....	215
21.10	Copying Groups.....	215
21.10.1	Overview .....	215
21.10.2	Copying One or More Groups from a Groups List.....	215
21.10.3	Copying a Group from the Group Details .....	216
21.10.4	Copy Permissions .....	217
<b>22</b>	<b>Roles and Permissions .....</b>	<b>218</b>
22.1	Overview .....	218
22.2	Assigning Roles to Users or Groups .....	218
22.2.1	Description of Roles.....	221
22.3	Assigning Permissions to Users or Groups .....	224
22.3.1	General Permissions Field Descriptions .....	225
22.4	Types of Permissions .....	226
22.4.1	Agent Permissions.....	227
22.4.2	Agent Cluster Permissions.....	228
22.4.3	Application Permissions .....	229
22.4.4	Bundle Permissions .....	230
22.4.5	Calendar Permissions.....	231
22.4.6	Credential Permissions .....	232
22.4.7	Database Connection Permissions .....	233
22.4.8	Email Connection Permissions .....	234
22.4.9	Email Template Permissions .....	235
22.4.10	OMS Server Permissions.....	236
22.4.11	PeopleSoft Connection Permissions.....	237
22.4.12	Promotion Target Permissions.....	238
22.4.13	SAP Connection Permissions .....	239
22.4.14	Script Permissions.....	240
22.4.15	SNMP Manager Permissions .....	241

22.4.16	Task Permissions .....	242
22.4.17	Task Instance Permissions .....	243
22.4.18	Trigger Permissions.....	245
22.4.19	Universal Event Permissions.....	246
22.4.20	Variable Permissions.....	247
22.4.21	Virtual Resource Permissions.....	249
22.4.22	Webhook Permissions.....	251
22.5	Exporting Permissions for a Group.....	251
<b>23</b>	<b>Webhooks.....</b>	<b>253</b>
23.1	Overview .....	253
23.2	Creating a Webhook .....	253
23.2.1	Webhook Details .....	254
23.2.2	Webhook Details Field Descriptions .....	256
23.3	URL Action.....	257
23.3.1	URL Action JSON Properties.....	258
23.3.2	URL Action JSON Examples.....	258

Overview

---

[Administration Overview](#)

Security

---

[Audits](#)

[Business Services](#)

Users and Groups

---

[Adding a User](#)

[Adding a Group](#)

[Assigning Roles to Users or Groups](#)

[Assigning Permissions to Users or Groups](#)

Universal Templates

---

[Universal Templates Overview](#)

[Creating a Universal Template](#)

[Universal Event Templates](#)

# 1 Properties

---

[Overview](#)

[Universal Controller Start-up Properties \(uc.properties\)](#)

[Universal Controller System Properties](#)

[Command Line Interface \(CLI\) Properties](#)

## 2 Configuration

---

[Data Backup / Purge](#)

[Filters](#)

[LDAP Settings](#)

[TrustStore](#)

[TrustStore Settings](#)

[Password Settings](#)

[Single Sign-On Settings](#)

[Server Operations](#)

## 3 Ports Configuration

---

[Ports Configuration](#)

## 4 Webhooks

---

[Webhooks](#)

## 5 Administration Overview

### 5.1 Universal Controller Administration

Administration of Universal Controller includes:

High Availability	Configuration of Universal Automation Center system as a redundant (multiple Universal Controller <a href="#">cluster node</a> ) system.
Ports Configuration	Configuration of ports for Universal Controller components and prerequisites.
Universal Controller Start-Up Properties	<p>These properties are required for Controller start-up, initialization, and operation.</p> <p>They are contained in the <code>uc.properties</code> file and have their values set during installation. To reset the values, you must stop the Controller, edit <code>uc.properties</code>, and restart the Controller.</p>
Universal Controller System Properties	<p>These properties define Controller system information and performance.</p> <p>They have their values set during installation. They are available, and can be reset, only via the user interface.</p>
LDAP Settings	<p>These settings enable you to enable the LDAP bridge.</p> <p>They have their values set only via the user interface; they are not set at installation.</p>
Universal Command Line Interface (CLI) Properties	CLI provides a sample configuration file, <code>cmdtools.props</code> , that you can use to pass CLI Global parameters to a CLI command. The file is created during installation of Universal Agent if the Universal Controller Command Line Interface has been selected to be installed.
Universal Templates	Creation of Universal Templates, on which Universal Tasks are based.
Data Backup/Purge	Configuration of automatic backups and/or purges of some or all of the Controller activity data.
Server Operations	Universal Controller server operations help you maintain and administer your Controller installation. Many of these operations should be run only by Technical Support or upon request by Technical Support.
Filters	Creation and application of filters to record lists throughout the Universal Controller user interface.
Users and Groups	Creation of Universal Controller <a href="#">users and user groups</a> and the <a href="#">roles and permissions</a> that can be assigned to them; <a href="#">Business Services</a> that group Controller records into logical groups; and <a href="#">audits</a> of all user interaction with the Controller.

## 5.2 Universal Controller Security

Setting up Universal Controller security involves the following steps:

- Creating [users](#) and assigning them passwords.
- Creating [groups](#) of users.
- Assigning [permissions](#) (access to Controller records) to users and groups.
- Assigning [roles](#) (permission to perform administrative functions) to users and groups.
- Creating [credentials](#) that allow the Controller to log in to remote machines and execute jobs.

See [LDAP Settings](#) for information on how to set up Universal Controller to use LDAP authentication for:

- [Credentials for running tasks](#)
- [User logins](#)

See [Single Sign-On Settings](#) for information on how to set up Universal Controller to use SAML authentication.

## 6 Ports Configuration

### 6.1 Ports Configuration

Ports configured for Universal Controller 7.2.x components and prerequisites cannot be blocked by a firewall.

The following table identifies the default ports, which you can change during installation or configuration:

Component or Prerequisite	Default Port
MySQL	3306
Microsoft SQL Server	1433
Oracle	1521
Universal Controller (Tomcat)	8080
Universal Message Service (OMS)	7878

# 7 Audits

## 7.1 Overview

Audits are detailed records of all user interactions with the Controller, including before and after information related to any change and a description of the difference.

Audits are created when the user performs any of the following [actions](#):

- [Logging](#) actions: log in, log out, or login failure.
- Creates, updates, or deletes a [record](#).
- Issues an [action or command](#) (for example, Launch Task or Trigger Now).
- [Imports](#) or [exports](#) records on a list.

## 7.2 Displaying Audits

**Step 1**

From the [Administration](#) navigation pane, select **Audits**.

You can change the default time constraint for the display of audits on the list via the [Audit Time Constraint](#) user preference.

Dashboards ▾ x
Audits x

🕒 Last 48 hours ▾
-- No Filter -- ▾
🔄 🗖

Audit Type	Source	Status	Description
📄 Command	Scheduled	Success	Executing Command: RUN DATA BACKUP/PURGE on System Default - Activity (Table: Activity)
📄 Command	User Interface	Success	Executing Command: LAUNCH on stonebranch-application-012 #QUERY#
📄 Command	User Interface	Failure	Executing Command: TEST EMAIL CONNECTION on QA-Internal-Invalid-Email-User-Name
📄 Command	User Interface	Failure	Executing Command: TEST EMAIL CONNECTION on B-02535_Email_Integration_Invalid
📄 Command	User Interface	Failure	Executing Command: TEST EMAIL CONNECTION on stonebranch-emailconnection-01
📄 Command	User Interface	Failure	Executing Command: TEST EMAIL CONNECTION on stonebranch-emailconnection-01
📄 Command	User Interface	Failure	Executing Command: TEST EMAIL CONNECTION on stonebranch-emailconnection-01
📄 Command	Scheduled	Success	Executing Command: RUN DATA BACKUP/PURGE on System Default - Activity (Table: Activity)
📄 Command	Scheduled	Success	Executing Command: RUN DATA BACKUP/PURGE on System Default - History (Table: History)
📄 Command	Scheduled	Success	Executing Command: RUN DATA BACKUP/PURGE on System Default - Audit (Table: Audit)
📄 Command	User Interface	Success	Executing Command: PROMOTE
📄 Command	User Interface	Success	Executing Command: PROMOTE
📄 Command	User Interface	Success	Executing Command: PROMOTE
📄 Command	User Interface	Success	Executing Command: PROMOTE
📄 Command	User Interface	Success	Executing Command: PROMOTE
📄 Command	User Interface	Success	Executing Command: PROMOTE
📄 Command	User Interface	Success	Executing Command: PROMOTE
📄 Command	Web Service	Failure	Executing Command: CREATE OMS SERVER on qa-opswise6:7878
📄 Command	Web Service	Success	Executing Command: CHANGE USER PASSWORD on Administrator

**Step 2**

To display Details about a specified audit, click the icon next to the **Audit Type** for that audit, or click anywhere in the Audit row. The Audit Details for that audit then displays.

- ☰ ×
↻

Audit
Child Audits

**Details**

Audit Type	Table Name
Command	ops_email_connection
Source	Table Key
User Interface	fff21ca5d8c740fbb737dad53f7e616f
Created	Table Record Name
2022-11-02 12:30:02 -0400	stonebranch-emailconnection-01
Created By	
Admin	
Node Id	Parent Audit
qa-opswise6:8080-qa-opswise6	
Node Mode	
Active	
Status	
Failure	
Description	
Executing Command: TEST EMAIL CONNECTION on stonebranch-emailconnection-01	
Before	
<pre>EmailConnectionBean { (authentication=false) (authentication_type=None) (default_pwd=*****) (default_user=null) (description=null) (email_addr=stonebranch@stonebranch.com) (imap=null) (imap_port=143) (imap_ssl=false) (imap_starttls=false) (is_authorized=false) (name=stonebranch-emailconnection-01) (oauth_client_id=null) (opswise_groups=null) (pop3=null) (pop3_port=110) (pop3_ssl=false) (smtp=server 1) (smtp_port=25) (smtp_ssl=false) (smtp_starttls=false) (sys_created_by=ops.admin) (sys_created_on=2014-06-13 15:30:39 -0400) (sys_id=fff21ca5d8c740fbb737dad53f7e616f) (sys_updated_by=ops.admin) (sys_updated_on=2014-06-13 15:30:39 -0400) (system_connection=false) (trash_folder=null) (type=Outgoing) (version=1)}</pre>	
After	
Difference	
Additional Information	
Could not send email using email connection 'stonebranch-emailconnection-01' (Couldn't connect to host, port: server 1, 25; timeout 60000).	

### 7.2.1 Audit Details Field Descriptions

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

Field Name	Description
Details	This section contains detailed information about the audit.

Audits– 19

Audit Type	Type of audit for which this Audit record was created.  Options: <ul style="list-style-type: none"> <li>• CLI</li> <li>• Create</li> <li>• Command</li> <li>• Delete</li> <li>• Delete Override File</li> <li>• Delete Version</li> <li>• Email</li> <li>• Export</li> <li>• Import</li> <li>• Restore Version</li> <li>• Server Operation</li> <li>• Universal Event</li> <li>• Update</li> <li>• User Login</li> <li>• z/OS Auto-Restart</li> </ul>
Table Name	Name of the table for which the user interaction was performed.
Source	Location of the user interaction.  Options: <ul style="list-style-type: none"> <li>• Agent Message</li> <li>• Command Line</li> <li>• Email Notification</li> <li>• Scheduled</li> <li>• Set Variable Action</li> <li>• Task Instance</li> <li>• User Interface</li> <li>• Web Service</li> </ul>
Table Key	Encrypted key to the table for which the user interaction was performed.
Created	Date when this audit was created.
Table Record Name	Name of the table record for this user interaction was performed.
Created By	User that created this audit.
Node ID	URL of the cluster node on which this Audit was created.
Parent Audit	Parent audit for which this audit was created automatically.
Node Mode	Mode of the cluster node on which this Audit was created.
Status	Status of the audit.
Description	Description of the user interaction for which this audit was created.
Before	Image of data before the user interaction.
After	Image of data after the user interaction.
Difference	Difference in the data as a result of the user interaction
Additional Information	Any additional information captured for this user interaction.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> information about this record.
UUID	Universally Unique Identifier of this record.

Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Audit Details that let you perform various actions.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Audit Details.
<b>Close</b>	Closes the Audit Details.
<b>Redo</b>	For Command type Enable Trigger or Disable Trigger; Execute the same command again (Enable or Disable).
<b>Undo</b>	For Command type Enable Trigger or Disable Trigger; Execute Disable for Enable command and Enable for Disable command.
<b>Tabs</b>	This section identifies the tabs across the top of the Audit Details that provide access to additional information about the audit.
Child Audits	List of any child audits for this audit.

## 8 Business Services

### 8.1 Overview

The Universal Controller Business Services feature allows you to organize your data into groups of related information.

You can create Business Services that represent your organization and [assign individual records](#) of different [record types](#) to each Business Service. You can then sort and filter the lists of these record types based on the Business Services, as well as generate reports.

For example, you may want to place all records of different record types related to accounting in a Business Service named Accounting.

You also can take advantage of Business Services when you set up security by [assigning permissions](#) to users and groups for records that are members of specific Business Services.

You also can [promote Bundles](#) that include records from one or more specific Business Services.

#### 8.1.1 Record Types for Business Services

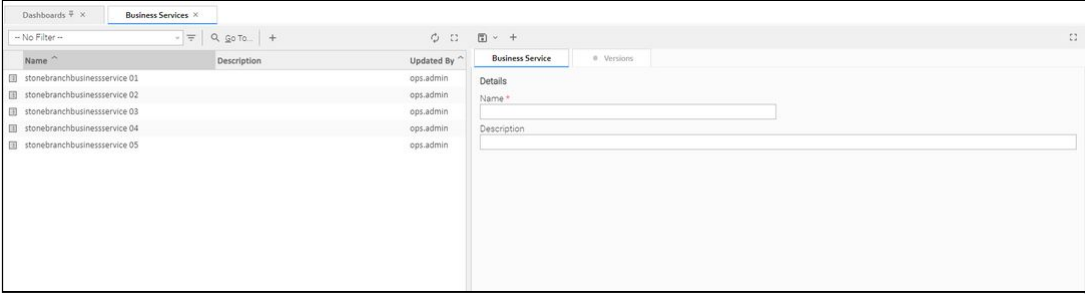
You can assign any record of the following record types to one or more Business Services:

- Agent
- Agent Cluster
- Application
- Calendar
- Credential
- Database Connection
- Email Connection
- Email Template
- PeopleSoft Connection
- SAP Connection
- Script
- SNMP Manager
- Task
- Task Instance
- Trigger
- Variable
- Virtual Resource

### 8.2 Creating Business Services

**Note**

You must be assigned the [ops\\_admin](#) role in order to perform this procedure.

<p><b>Step 1</b></p>	<p>From the <a href="#">Administration</a> navigation pane, select <b>Security &gt; Business Services</b>. The Business Services list displays.</p> <p>To the right of the list, Business Service Details for a new Business Service displays.</p> 
<p><b>Step 2</b></p>	<p>Enter/select Details for a new Business Service, using the <a href="#">field descriptions</a> below as a guide.</p> <ul style="list-style-type: none"> <li>• Required fields display an asterisk ( * ) after the field name.</li> <li>• Default values for fields, if available, display automatically.</li> </ul> <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> <li>• Use the scroll bar.</li> <li>• Temporarily <a href="#">hide the list</a> above the Details.</li> <li>• Click the <b>New</b> button above the list to display a pop-up version of the Details.</li> </ul>
<p><b>Step 3</b></p>	<p>Click a <b>Save</b> button. The Business Service is added to the database, and all buttons and tabs in the Business Service Details are enabled.</p>

**Note**

To [open](#) an existing record on the list, either:

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

### 8.2.1 Business Service Details

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

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

## 8.2.2 Business Service Details Field Descriptions

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

Field Name	Description
<b>Details</b>	This section contains detailed information about the Business Service.
Name	Name used within the Controller to identify this Business Service. It can contain a maximum of 40 alphanumeric characters.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the <a href="#">Versions</a> tab to view previous versions. For details, see <a href="#">Record Versioning</a> .
Description	Description of this record. (Maximum = 255 characters.)
<b>Metadata</b>	This section contains <a href="#">Metadata</a> information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
<b>Save</b>	Saves a new task record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new record.

<b>Update</b>	Saves updates to the record.
<b>Delete</b>	<p>Deletes the current record.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>You cannot delete a Business Service if it has been assigned to one or more <a href="#">records</a>.</p> </div>
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.
<b>Tabs</b>	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
<b>Versions</b>	Stores copies of all previous versions of the current record. See <a href="#">Record Versioning</a> .

## 8.3 Business Service Membership Considerations for Create, Read, Update, Delete, and Execute

When creating or updating a record, use the **Member of Business Services** field to select one or more Business Services for that record. This, in effect, assigns the record to that Business Service.

You cannot perform an operation (create, read, update, or delete) or issue a command (such as copy) on a record that is a member of a Business Service if you do not have a Permission defined for that record type that includes that operation/ command and Business Service membership.

### 8.3.1 Create

When creating a record that is a member of one or more Business Services, the user must have Create permission that applies for each Business Service that the record is becoming a member of; otherwise, the operation will be prohibited.

### 8.3.2 Read

When reading/viewing a record (for example, a list or record Details), the user needs only Read permission for one of the Business Services that the record is a member of.

**Note**

Depending on the value of the [Strict Business Service Membership Read Constraints](#) system property, users may be granted implicit Read permission for specific record types. Refer to the property for more details.

### 8.3.3 Update

When updating a record, the user must have Update permission for both the original record and the updated record.

As long as an update is not changing the Business Service memberships of a record, the user needs only Update permission for one of the Business Services that the record is a member of.

If the update is adding or removing Business Service membership, further security constraints apply:

- For any added Business Service, the user must have Update permission for the modified record that applies explicitly for the Business Service being added.
- For any removed Business Service, the user must have Update permission for the original record that applies explicitly for the Business Service being removed.

### 8.3.4 Delete

When deleting a record that is a member of one or more Business Services, the user must have Delete permission that applies for each Business Service the record is a member of; otherwise, the operation will be prohibited.

### 8.3.5 Execute

At task instance run time, the task instance Execution User requires Execute permission, or Read permission if Execute permission is not applicable, for the following record type dependencies.

<b>Tasks needing to read a Global Variable</b>	Execution User requires Read permission for that Global Variable.
<b>Tasks requiring a Connection</b>	Execution User requires Execute permission for that required Connection (Email Connection, Database Connection, SAP Connection, PeopleSoft Connection, SNMP Manager).
<b>Tasks requiring a Credential</b>	Execution User requires Execute permission for that Credential. (References to Credentials can exist for both non agent-based and agent-based task types. Furthermore, agents can specify default Credentials, even if the Credentials are not directly defined on the task.)
<b>Tasks requiring an Email Template</b>	Execution User requires Read permission for that Email Template.
<b>Tasks requiring a Virtual Resource</b>	Execution User requires Execute permission for that Virtual Resource.
<b>Tasks running a Script</b>	Execution User requires Execute permission for that Script.
<b>Tasks running on an Agent</b>	Execution User requires Execute permission for that Agent.

## 9 Data Backup - Purge

### 9.1 Overview

Universal Controller maintains a record of all system activity, including:

- [Audits](#)
- [Activity](#)
- [History](#)

The Data Backup / Purge feature allows you to configure automatic backups and/or purges of some or all of the Controller activity data. Depending on your organization's needs, you should schedule regular data backups. Depending on the volume of your installation, the amount of data in your Controller database could become unwieldy if you do not schedule regular purges of old data.

The data is written to XML files in the directory you specify.

#### Note

For instructions on how to purge user-created Controller records, see [Purging Old Versions of Records](#).

### 9.2 Purge Rules for Task Instances

The following rules apply for the purging of task instances.

#### 9.2.1 Task Instance Status

A task instance (including a workflow task instance) can be purged only if it is in a [status](#) greater than 99:

- 110 (In Doubt)
- 120 (Start Failure)
- 125 (Confirmation Required)
- 130 (Cancelled)
- 140 (Failed)
- 180 (Skipped)
- 190 (Finished)
- 200 (Success)

A task instance within a workflow cannot be purged until its workflow task instance has been purged.

A workflow task instance cannot be purged if one or more of its task instances is in a status other than Skipped, Finished, or Success, because that will cause the workflow to be in a status which will not qualify it to be purged (for example: Running, Running/Problems), and therefore none of the task instances within the workflow will qualify for purge.

### 9.2.2 Purging by Retention Duration

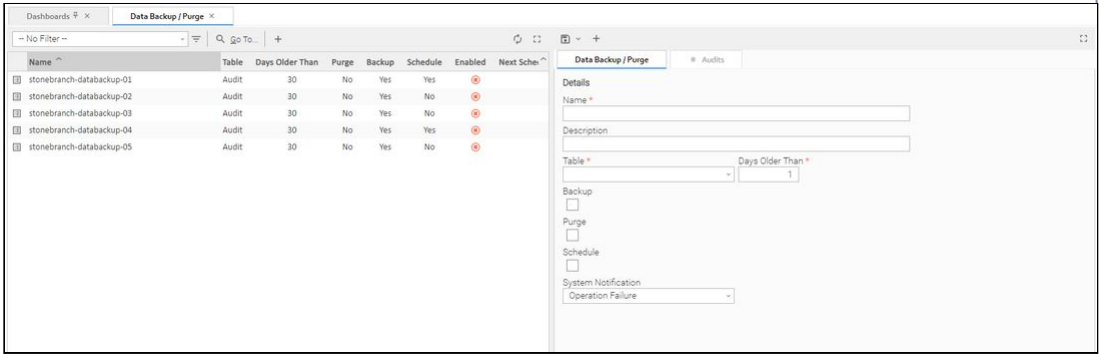

If Purge By Retention Duration has been specified for a trigger or a task, and the Purge By Retention Duration checkbox has been selected in the [Data Backup / Purge Details](#), all task instances launched by the trigger or task are eligible to be purged from the database as soon as the retention duration time specified in the trigger or task has been met.



When a purge is run, any task instances eligible to be purged by retention duration will be purged regardless of the [Days Older Than](#) value specified in the Purge Details.

**Note**

The Trigger Level (Purge By Retention Duration) feature is used for selectively purging instances earlier than the System Level (Days Older Than) purge and not intended for retaining instances longer than the System Level purge. The System Level purge will not take into consideration the Retention Duration and, therefore, setting a trigger Retention Duration longer than the configured System Level purge will not retain those instances longer.


### 9.3 Creating a Data Backup / Purge Record

<p><b>Step 1</b></p>	<p>From the <a href="#">Administration</a> navigation pane, select <b>Configuration &gt; Data Backup / Purge</b>. The Data Backup / Purge list displays.</p> <p>To the right of the list, Details for a new Data Backup / Purge record displays.</p> 
<p><b>Step 2</b></p>	<p>Enter / select Details for a new Data Backup / Purge record, using the <a href="#">field descriptions</a> below as a guide.</p> <ul style="list-style-type: none"> <li>• Required fields display an asterisk ( * ) after the field name.</li> <li>• Default values for fields, if available, display automatically.</li> </ul> <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> <li>• Use the scroll bar.</li> <li>• Temporarily <a href="#">hide the list</a> above the Details.</li> <li>• Click the  button above the list to display a pop-up version of the Details.</li> </ul>
<p><b>Step 3</b></p>	<p>If you want the backup / purge to run automatically, enable the <b>Schedule</b> field and specify how often and what time it should run. Otherwise, you can run it manually.</p>

<b>Step 4</b>	 Click a  button to save the record. The record is added to the database, and all buttons and tabs in the Data Backup / Purge Details are enabled.
---------------	--

**Note**

To [open](#) an existing record on the list, either:

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

### 9.3.1 Data Backup / Purge Details

The following Data Backup / Purge Details is for an existing Data Backup / Purge record.

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 Data Backup / Purge Details.

Data Backup / Purge Details: stonebranch-databackup-01
- [maximize] [close]

🗑️ 📅 🔧 🏃 ⊗
Enable Run Terminate
🔄

Data Backup / Purge
Audits

**Details**

Name \*

Description

Table \*  Days Older Than \*

Backup  Export Path

Purge

Schedule

Every # Days \*  Time \*  Hour  Min

System Notification

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

### 9.3.2 Data Backup / Purge Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Data Backup / Purge Details.

Field Name	Description
<b>Details</b>	This section contains detailed information about the record.
Name	Name of this backup specification.
Description	Description of this record. (Maximum = 255 characters.)
Table	Specifies which records you want to back up and/or purge: <ul style="list-style-type: none"> <li>• Audit</li> <li>• Activity</li> <li>• History</li> </ul>
Days Older Than	Allows you to specify the minimum number of days you wish to retain data. The process will run according to the schedule you specify, only processing data that is older than the number of days you specify in this field.
Backup	If enabled, the process will write all the selected data to XML files.
Export Path	<p>If <a href="#">Backup</a> is enabled, specifies the path to the directory to which you want the backed up data written. The data must be backed up to a location on the server's file system. It is written to a separate XML file for each record type, as shown in the following examples:</p> <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p><b>Audit:</b> ops_audit_Sat_Apr_30_08_30_00_PDT_2011.xml</p> <p><b>Activity:</b> ops_exec_sleep_Sat_Apr_30_08_30_00_PDT_2011.xml ops_exec_unix_Sat_Apr_30_08_30_00_PDT_2011.xml ops_exec_workflow_Sat_Apr_30_08_30_00_PDT_2011.xml</p> <p><b>History:</b> ops_history_Sat_Apr_30_08_30_00_PDT_2011.xml</p> </div> <div style="border: 2px solid #ffc000; padding: 10px; margin: 10px 0;"> <p><b>Note</b></p> <p>If no path is specified, the system default path (<b>opswise_backups</b> under the Tomcat directory) is used, unless an alternate path is specified in the Universal Controller system property <a href="#">Data Backup/Purge Export Path</a>. If a path is specified but does not exist as an "absolute" path, it will be assumed to be a "relative" path from Tomcat home.</p> </div>
Purge	If enabled, the process will purge the selected data from your Universal Controller database.
Purge By Retention Duration	Specification for whether task instances qualifying to be purged by <a href="#">retention duration</a> should be purged.

Schedule	If enabled, displays additional fields that allow you to specify an automated backup and/or purge schedule. If you do not select schedule, you must manually run the backup / purge process.
Next Scheduled Time	System-supplied; If Data Backup/Purge is enabled; the next scheduled time the that backup / purge process will run, based on the specifications in your schedule.
Every # Days	If <a href="#">Schedule</a> is enabled, specifies the frequency (in number of days) of the backup / purge process. Default is 1.
Time	<p>If <a href="#">Schedule</a> is enabled, specifies the time of the backup / purge. Use 24:00 hour time.</p> <div style="border: 1px solid yellow; padding: 5px;"> <p><b>Note</b></p> <p>When enabling a Data Backup / Purge, or updating the Time for an enabled Data Backup / Purge, the backup / purge process will be scheduled for the specified Time on the current day if the current time is on or before the specified Time. Otherwise, the backup / purge process will be scheduled for the specified Time on the next day.</p> </div>
System Notification	<p>Specification for whether or not to receive <a href="#">system notifications</a> for Data Backup / Purge operations.</p> <p>Options are:</p> <ul style="list-style-type: none"> <li>• –None –</li> <li>• Operation Failure</li> <li>• Operation Success/Failure</li> <li>• Operation Success</li> </ul> <div style="border: 1px solid yellow; padding: 5px;"> <p><b>Note</b></p> <p>In order to receive system notifications, you must provide an email address in the <a href="#">Administrator Email Address</a> system property and select the <a href="#">Use for System Notifications</a> field on an <a href="#">Email Connection</a>.</p> </div>
<b>Metadata</b>	This section contains <a href="#">Metadata</a> information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Data Backup / Purge Details that let you perform various actions.
<b>Save</b>	Saves a new record in the Controller database.
<b>Save &amp; New</b>	Saves a new Data Backup/Purge record in the Controller database and redisplay empty Details so that you can create another Data Backup/Purge record.
<b>Save &amp; View</b>	Saves a new Data Backup/Purge record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new record.

<b>Update</b>	Saves updates to the record.
<b>Enable</b>	Enables these Backup / Purge instructions so that they will be processed by the Controller.
<b>Disable</b>	Disables these backup / purge instructions so they will not be processed by the Controller.
<b>Run</b>	Manually runs the backup / purge instructions.
<b>Terminate</b>	Terminates a running Data Backup/Purge operation.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this record.
<b>Tabs</b>	This section identifies the tabs across the top of the Data Backup / Purge Details that provide access to additional information about the record.
<b>Audits</b>	Lists <a href="#">audits</a> created for all scheduled runs of this data backup / purge operation.

## 9.4 Running a Data Backup / Purge Manually

If you want to manually run a data backup or purge, either:

- On the Backups list, right-click the **Name** of the Data Backup / Purge that you want to run and click **Run**.
- Display the Details of the Data Backup / Purge that you want to run and click the **Run** button.

## 9.5 Importing Backed Up / Purged Data into the Controller

If you want to import any of the XML files created by a Data Backup / Purge, you can copy the XML file(s) into the bulk export output path and run bulk import. See [Running an Import](#).

## 9.6 Returning Virtual Resources for Purged Task Instances in Failure Status

Task instances that have their **Hold Resources on Failure** field enabled will hold their renewable [virtual resources](#) if the task instance is in [Failed](#) status.

However, when these task instances are purged, the virtual resources are returned.

# 10 Filters

## 10.1 Overview

Universal Controller lets you apply filters to [lists](#) throughout the user interface.

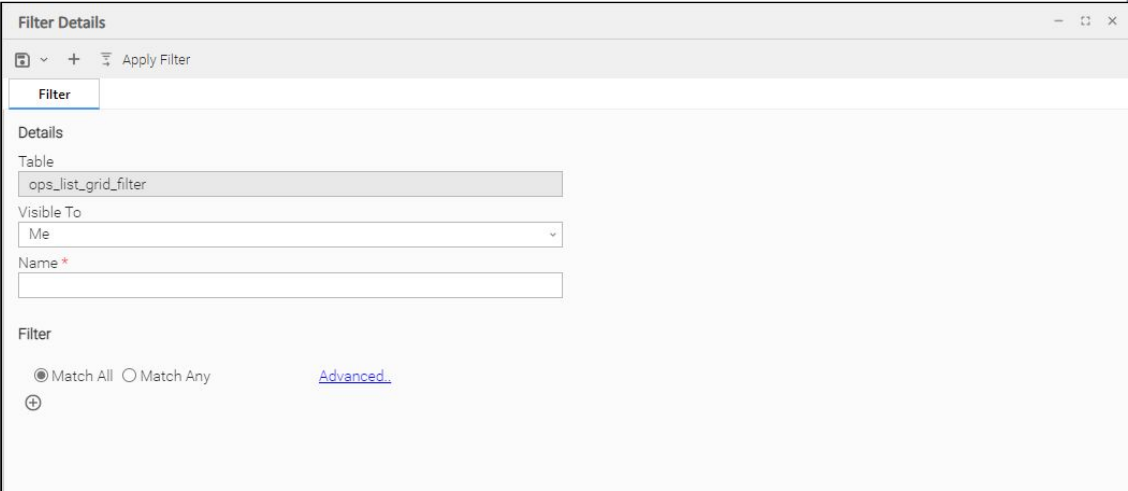
- You can:
- Create a filter and either:
    - Apply it only to the list for which it was created.
    - Apply it to multiple record types (see [Global Filters](#)) .
  - Create any number of Filters for a list, and any amount of criteria for each Filter.
  - Create a Filter and apply it to a list without saving it; you will not be able to re-apply it to the list.
  - Create a Filter and save it; the filter is automatically applied to the list and saved so that you will be able to re-apply it to the list at any time.
  - Save a previously saved Filter under a different name. You can edit the re-named Filter and apply it to the same list as the original Filter at any time.

By default, no filtering is applied to a list. This is indicated by the default value (-- **No Filter** --) for the **Filter** field in the [List task bar](#). However, you can [pin](#) a saved Filter to a list to make that the default Filter for the list.

You also can create a quick, one-time filter (it is not saved) that allows you to sort a list by record name (see [Go To Filter](#)).

## 10.2 Creating a Filter

To create a Filter:

<p><b>Step 1</b></p>	<p>From the <a href="#">Services</a>, select the record type list for which you want to apply a filter.</p>
<p><b>Step 2</b></p>	<p>Click the <b>Filter...</b> button in the <a href="#">List task bar</a> that displays at the top of the list. A <b>Filter Details</b> pop-up dialog displays.</p> 

<b>Step 3</b>	<p>In the <a href="#">Visible To</a> field, select whether you want the Filter to be visible to only to the logged in user, to any logged in user, or to any logged in user that belongs to the same user group as the logged in user.</p> <p>A user can apply any visible Filter to a list, and can modify any Filter that is visible to that user or that user group. A user may not be able to update a filter that is visible to all users, but can save/modify that filter local to the user.</p>
<b>Step 4</b>	<p>If you want the filter to be available for use for all record type that use filters, click the <a href="#">global</a> checkbox.</p>
<b>Step 5</b>	<p>Using the <a href="#">field descriptions</a> below as a guide, select criteria for the Filter.</p>
<b>Step 6</b>	<p>When you have selected the filter criteria, you can:</p> <ul style="list-style-type: none"> <li>• <a href="#">Apply the filter</a> to the list immediately.</li> <li>• <a href="#">Save the filter</a> to apply it to the list immediately and save it so that it can be applied again at any time.</li> <li>• Apply the filter and then save it.</li> </ul> <p>If you want to save the Filter, you must enter a <b>Name</b> for it. You do not have to enter a <b>Name</b> for a Filter if you only want to apply it.</p>

#### Note

You also can create a filter by viewing a saved filter on the [Filters list](#) and clicking the [Save As...](#) button. This new filter applies only to the record type list of the saved filter, but you can change any of its [filter criteria](#).

## 10.3 Global Filters

Global filters can be created from any supported record type and can be used/applied in any record types.

For example, you can create a global filter for a type of task and use that same filter in Triggers or any other supported records.

### 10.3.1 Filter Fields

You can create global filters with the following common fields and use them on any supported record types.

Whichever record type has all of these common fields, the global filter can be created and re-used from other record types.

Field	Description
Name	Name of the record
Description	Description
Member of Business Services	List of Business Services
Created	Created Date
Created By	Created By
Updated	Updated Date
Updated By	Updated By
UUID	UUID of the record

### 10.3.2 Supported Record Types

You can create global filters for the following record types.

- Agent
- Agent Cluster
- Application
- Bundle
- Bundle Target
- Calendar
- Credential
- Database Connection
- Email Connection
- Email Template
- OMS Sever
- Peoplesoft Connection
- SAP Connection
- Script
- SNMP Connection
- Task
- Task Instance
- Trigger
- Variable
- Virtual Resource

## 10.4 Applying a Filter

There are two ways to apply a Filter to a list:

1. [Apply a new Filter.](#)
2. [Apply an existing Filter.](#)
3. [Save a new Filter.](#)

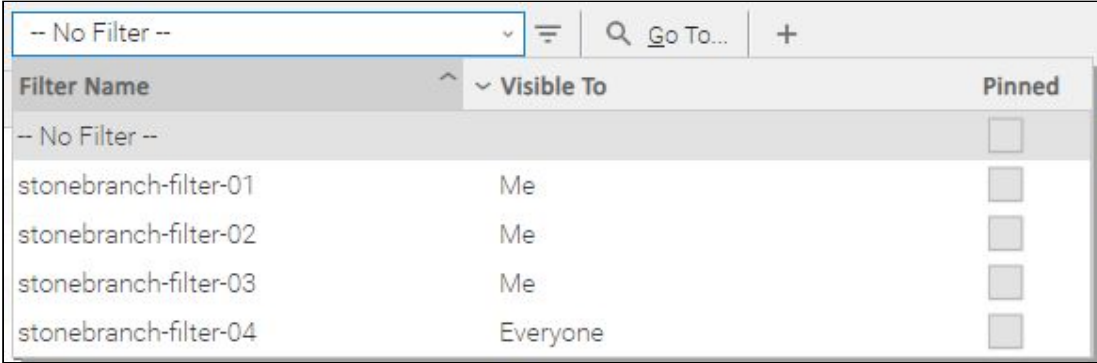
### 10.4.1 Applying a New Filter

To apply a new Filter to a list:

<b>Step 1</b>	After you have <a href="#">created a Filter</a> , click the <b>Apply Filter</b> button. The list then displays only those records that match the selected criteria. The Filter is identified as <b>--Unsaved 1--</b> in the <b>Filter</b> field on the <a href="#">List task bar</a> .
<b>Step 2</b>	If you want to save the applied Filter so that it can be re-applied to this list at any time, click the <b>Save</b> button. The Filter now is listed on the <a href="#">Filters list</a> .  If you do not want to save the applied Filter, click the <b>Close</b> button.
<b>Step 3</b>	To remove the Filter from the list and redisplay all records, click <b>-- No Filter --</b> in the <b>Filter</b> field.

## 10.4.2 Applying an Existing Filter

To apply an existing Filter to a list:

<p><b>Step 1</b></p>	<p>On the <a href="#">List task bar</a>, click the <b>Filter</b> drop-down list arrow to display a list of all existing Filters for this list.</p>  <p>The list identifies the name of each Filter, to whom the Filter is <a href="#">visible</a>, and whether or not the Filter is <a href="#">pinned</a>.</p>
<p><b>Step 2</b></p>	<p>Click the Filter that you want to apply to the list. The list displays only those records that match the criteria of the selected Filter, which now is identified in the <b>Filter</b> field.</p>

## 10.5 Saving a Filter

Saving a Filter:

- Applies it to the list immediately.
- Saves it so that it can be applied again at any time.

Also you must save a Filter if you want to [pin the Filter](#) to the list so that it replaces **-- No Filter --** as the default Filter for the list.

To save a filter that you have [created](#), click the **Save** button in the Filter Details. The saved Filter:

- Is applied to the list.
- Displays in the **Filter** drop-down list in the [List task bar](#).
- Displays in the [Filters list](#) of all Filters created for all list.

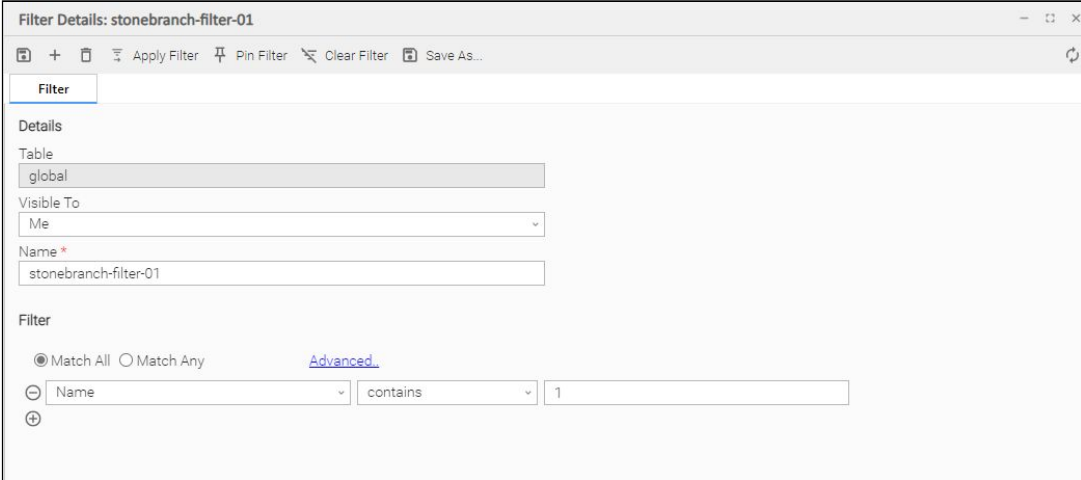
## 10.6 Pinning a Filter

You can pin a saved Filter to a list so that the pinned Filter replaces **-- No Filter --** as the default Filter for the list. Only records in the list that match the criteria of the pinned Filter will be displayed, by default, on the list.

(Pinning a Filter to a list does not prevent you from selecting other Filters for the list.)

To pin a Filter to a list:

<p><b>Step 1</b></p>	<p>Create and save a Filter.</p>
<p><b>Step 2</b></p>	<p>Apply the Filter to the list. The <b>Name</b> of the Filter is identified in the <b>Filter</b> field of the <a href="#">List task bar</a>.</p>

<p><b>Step 3</b></p>	<p>Click the <b>Filter</b> button in the List task bar to display the Filter Details for the applied Filter.</p> 
<p><b>Step 4</b></p>	<p>Click the <b>Pin Filter</b> button, and then click the <b>Close</b> button. (You do not have to click the <b>Update</b> button, as no changes were made to the details.) The pinned Filter has now become the default Filter for this list.</p>

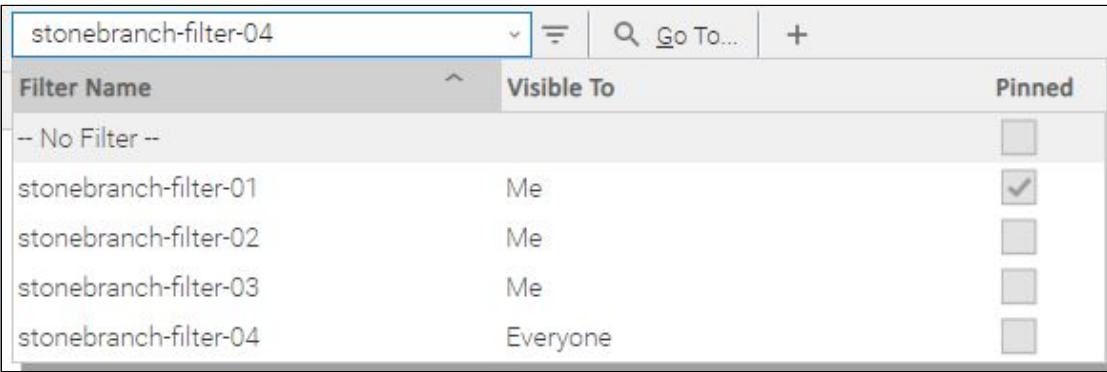
### 10.6.1 Unpinning a Filter

If you have pinned a saved Filter to a list so that it has become the default Filter for the list, only records in the list that match the pinned Filter criteria are displayed. You must unpin the Filter in order to select **-- No Filter --** as the default Filter, which allows all records in the list to display.

To unpin a Filter to a list:

**Note**

If the pinned Filter is the Filter currently applied to the list, skip to Step 3.

<p><b>Step 1</b></p>	<p>Click the <b>Filter</b> drop-down list arrow of the <b>List task bar</b> to display the list of all Filters for the list. The pinned Filter is identified with a check mark in the Pinned column.</p> 
<p><b>Step 2</b></p>	<p>Click the pinned Filter to apply it to the list.</p>

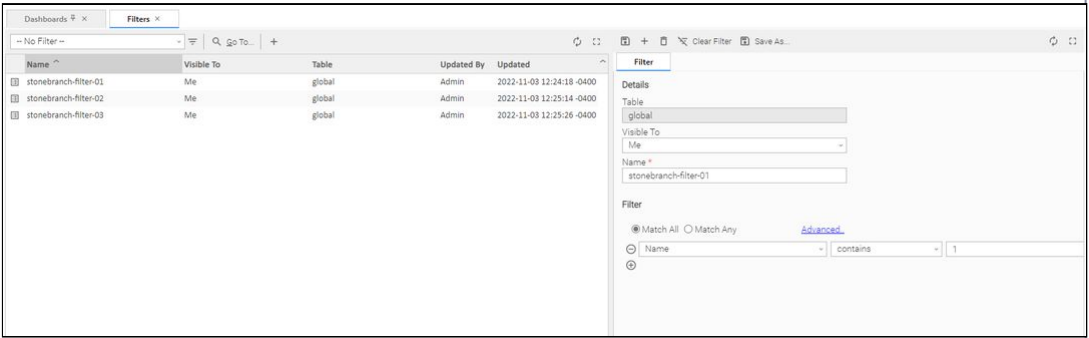
<b>Step 3</b>	Click the <b>Filter</b> button on the <a href="#">List task bar</a> to display the Filter Details for the pinned Filter.
<b>Step 4</b>	Click the <b>Unpin Filter</b> button, and then click the <b>Close</b> button. (You do not have to click the <b>Update</b> button, as no changes were made to the details.) The pinned Filter is no longer the default Filter for this list (although the unpinned Filter remains as the currently selected Filter for the list).

## 10.7 Filters List

The Filters list displays a list of all saved Filters for all lists.

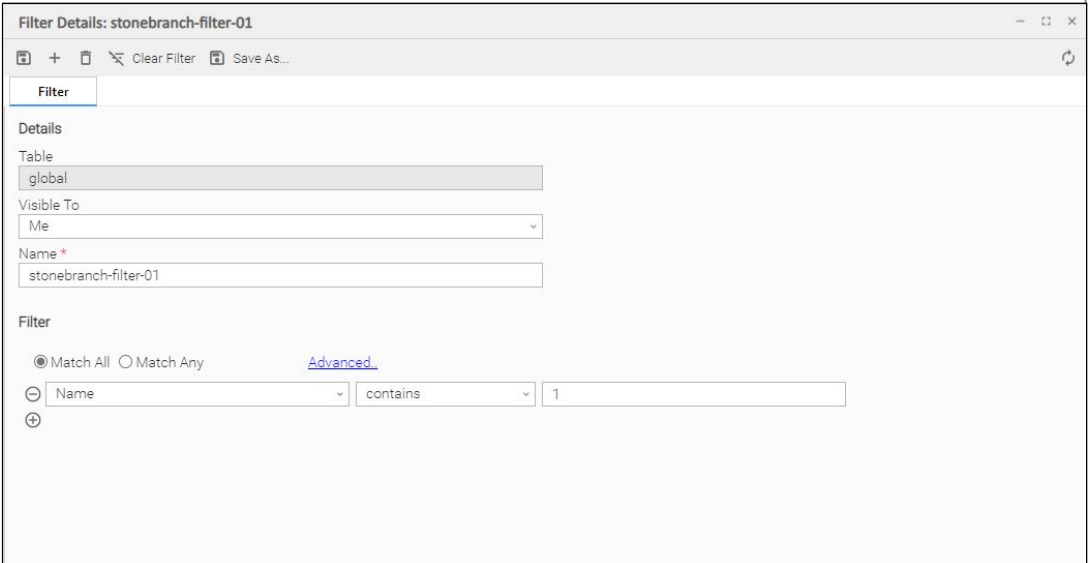
**Step 1**

From the **Administration** navigation pane, select **Configuration > Filters**. The Filters list displays.



**Step 2**

Click the Details icon next to a Filter Name or click anywhere in the Filter row to display Details for that Filter.



See the [field descriptions](#) below for a description of the fields and buttons in the Filter Details.

**Note**

If you want to apply a Filter to a list, you must select the Filter from the **Filter** field in the [List task bar](#) for that list. You cannot apply a Filter from the Filters list or from the Details of a Filter in the Filters list.

## 10.8 Filter Details Field Descriptions

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

Field Name	Description
<b>Details</b>	This section contains detailed information about the Filter record.
Table	Universal Controller table (record type) to which this Filter applies.
Global	Indication for whether or not this filter will be available for multiple record types (see <a href="#">Global Filters</a> ).
Visible To	Users that can see this Filter in the <b>Filters</b> drop-down list and <a href="#">apply the Filter</a> to the list.  Options: <ul style="list-style-type: none"> <li>• Me: only the logged in user can see and apply this Filter.</li> <li>• Everyone: all logged in users can see and apply this Filter.</li> <li>• Group: All users belonging to the selected group to which the logged in user belongs can view and apply this Filter.</li> </ul>
Name	Name of this Filter.
<b>Filter</b>	This section contains the criteria for the Filter.
Match All	Specifies that when this Filter is applied, the list will displays all records that match all of the criteria.
Match Any	Specifies that when this Filter is applied, the list will displays all records that match any of the criteria.
Add ( + ) icon (Filter Criteria fields)	Allows you to add three criteria fields for this Filter: <ol style="list-style-type: none"> <li>1. Field in the record Details for this record type on which to base the Filter.</li> <li>2. Comparison operator.</li> <li>3. Value(s) to compare the Field in the record Details with (not case-sensitive).</li> </ol> <div style="border: 1px solid yellow; padding: 5px; margin-top: 10px;"> <p>If you are filtering on date-related fields using the <b>between (inclusive)</b> comparison operator (SQL BETWEEN condition), the database query can produce unexpected results when the later date is specified before the earlier date.</p> </div>
<b>Buttons</b>	This section identifies the buttons displayed above and below the Filter Details that let you perform various actions.
<b>Save</b>	For a new Filter; applies the Filter to the list and saves a new Filter record in the Controller database.
<b>Save As...</b>	For saved Filters; Creates a copy of the filter with a different <a href="#">Name</a> and/or <a href="#">Visible To</a> fields.
<b>Apply Filter</b>	For a new, unsaved Filter; applies the filter to the list.  For an applied Filter; allows you to see the results of any changes made to the Filter criteria before updating the Filter.

<b>Pin Filter</b>	For a Filter; allows you to pin (select) the Filter as the default Filter for the list.
<b>Unpin Filter</b>	For a Filter; allows you to unpin (de-select) the Filter as the default Filter for the list.
<b>Clear Filter</b>	For saved Filters; clears the Filter of all criteria field values.
<b>Update</b>	Saves updates to the record.
<b>New</b>	Displays empty (except for default values) Details for creating a new record.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this Filter.

## 10.9 Unresolved and Variable Fields in a Filter List

For records that have one or more fields in which you can enter a variable instead of selecting a record type, the first of the three [Filter Criteria fields](#) includes two selections:

- **<record type>Variable**
- **<record type>Unresolved**

**Variable** refers to the **Variable** check mark field that is provided for a record type field. If you select **<record type>Variable**, a Comparison Operator, and a Value, and then apply the filter, the list will display only those records that have the **Variable** field check marked and which match the Comparison Operator and Value criteria.

**Unresolved** refers to the <record type> field itself in which a variable has been entered. If you select **<record type>Unresolved**, a Comparison Operator, and a Value, and then apply the filter, the list will display only those records that have the **Variable** field check marked and which match the Comparison Operator and Value criteria for the <record type> field.

### 10.9.1 Examples

The following examples illustrate **Variable** and **Unresolved** filter criteria being applied to a task list.

#### 10.9.1.1 Example 1

Apply this filter criteria to list all tasks for which the **Agent Variable** field has been check marked.

- □ ×
Filter Details

📄 + ⌵ Apply Filter

Filter

**Details**

Table Global

Visible To

Name \*

**Filter**

Match All
  Match Any
 [Advanced...](#)

⊖

⊕

### 10.9.1.2 Example 2

Apply this filter criteria to list all tasks for which the **Highest Instance Time in Seconds** is greater than **30** and the task **Name** contains the characters **stonebrach**.

- □ ×
Filter Details

📄 + ⌵ Apply Filter

Filter

**Details**

Table Global

Visible To

Name \*

**Filter**

Match All
  Match Any
 [Advanced...](#)

⊖

⊖

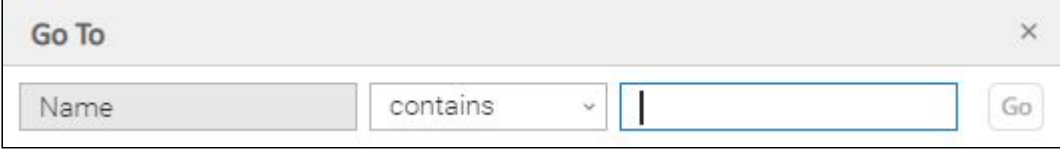
⊕

## 10.10 Go To Filter

You can create a quick filter for a list that will filter the list by full or partial record name.

You can filter for a specific record name or for record names matching a [Go To Operator](#) user preference: **contains**, **starts with**, or **equals**.

To create a Go To filter:

<p><b>Step 1</b></p>	<p>From the <a href="#">Services</a>, select the record type list for which you want to apply a filter.</p>
<p><b>Step 2</b></p>	<p>Either:</p> <ul style="list-style-type: none"> <li>• Click the <b>Go To...</b> button in the <a href="#">List task bar</a> that displays at the top of the list.</li> <li>• Press the <a href="#">Access Key Combination</a> that is appropriate for your browser / platform to highlight the <b>Go To...</b> button, and then press the <b>Enter</b> key.</li> </ul> <p>A <b>Go To</b> pop-up dialog displays.</p> 
<p><b>Step 3</b></p>	<p>Select an operator for the Go To filter (the current value of the <a href="#">Go To Operator</a> user preference displays by default), enter a full or partial record name, and click the <b>Go</b> button. The list then will display only records that match your Go To filter selections.</p> <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>Selecting an operator that is different than the current <a href="#">Go To Operator</a> user preference value does not change that user preference value.</p> </div>

# 11 TrustStore

## 11.1 Overview

Universal Controller requires a truststore (keystore) in order to support SSL/TLS validation and encryption for LDAPS and HTTPS communications. The truststore will contain the server certificates or the root certificate (Certificate Authority) that issued the server certificate.

Universal Controller truststore uses the Oracle Java keystore format (JKS). By default, and without further configuration, the Java keystore will be used. The Java keystore (cacerts) is located in the `/lib/security` sub-directory of the JRE home directory.

Server certificates can be imported using the Oracle Java keytool utility, which can be found in the `bin` sub-directory of the JRE home directory.

JRE version-specific documentation for the keytool utility can be found at docs.oracle.com. For JRE 8, the documentation is available at <http://docs.oracle.com/javase/8/docs/technotes/tools/windows/keytool.html>.

You can also manage certificates through the controller UI by using [TrustStore Settings](#) on the administration navigation pane.

## 11.2 Configuring Universal Controller

If you choose not to use the JRE TrustStore, you must configure the following properties in the [Universal Controller Start-up Properties \(uc.properties\)](#) file:

- `uc.trustmanager.truststore`
- `uc.trustmanager.truststore.password`

These properties will take effect only after you restart Tomcat.

## 11.3 Importing Server Certificates

After you have obtained the certificate, you will need to import the certificate into the truststore. This can be done with the following example keytool command, which will create the keystore if it does not already exist:

```
keytool -keystore $JAVA_HOME/lib/security/cacerts -importcert -trustcacerts -file
server_ca_certificate.pem -alias serverca
```

You can also import certificates using [TrustStore Settings](#) on the administration navigation pane of the controller.

# 12 TrustStore Settings

## 12.1 Overview

TrustStore Settings, which allow you to manage the default TrustStore, are available through the user interface.

The user running the Tomcat process has to have write access to the TrustStore file to import trusted certificates, examine certificates or delete entries.

After importing or deleting an entry, restarting the controller may be required for the changes to take effect.

Deleting and importing is only for the current cluster node.

If you choose not to use the JRE TrustStore, you must configure the following properties in the [Universal Controller Start-up Properties \(uc.properties\)](#) file:

- [uc.trustmanager.truststore](#)
- [uc.trustmanager.truststore.password](#)

These properties will take effect only after you restart Tomcat.

## 12.2 TrustStore Settings Details

See the field descriptions below, for a description of all fields and buttons that display in the TrustStore Settings Details.

The screenshot shows the 'TrustStore Settings' window with the following details:


- TrustStore Name:** D:\tomcat9\conf\uccacerts.jks
- TrustStore File:** D:\tomcat9\conf\uccacerts.jks
- TrustStore Type:** JKS
- TrustStore Provider:** SUN
- TrustStore Password:** [Redacted]

The 'Entries' section displays a table of trusted certificates:

Alias	Type	Algorithm	Certificate Expiration	Created
affirmtrustcommercialca [jdk]	Trusted Certificate	RSA	2030-12-31 09:06:06 -0500	2023-07-21 17:57:36 -0400
affirmtrustnetworkingca [jdk]	Trusted Certificate	RSA	2030-12-31 09:08:24 -0500	2023-07-21 17:57:36 -0400
affirmtrustpremiumca [jdk]	Trusted Certificate	RSA	2040-12-31 09:10:36 -0500	2023-07-21 17:57:36 -0400
affirmtrustpremiumeccca [jdk]	Trusted Certificate	EC	2040-12-31 09:20:24 -0500	2023-07-21 17:57:36 -0400
amazonrootca1 [jdk]	Trusted Certificate	RSA	2038-01-16 19:00:00 -0500	2023-07-21 17:57:36 -0400
amazonrootca2 [jdk]	Trusted Certificate	RSA	2040-05-25 20:00:00 -0400	2023-07-21 17:57:36 -0400
amazonrootca3 [jdk]	Trusted Certificate	EC	2040-05-25 20:00:00 -0400	2023-07-21 17:57:36 -0400
amazonrootca4 [jdk]	Trusted Certificate	EC	2040-05-25 20:00:00 -0400	2023-07-21 17:57:36 -0400
baltimorecybertrustca [jdk]	Trusted Certificate	RSA	2025-05-12 19:59:00 -0400	2023-07-21 17:57:36 -0400
buypassclass2ca [jdk]	Trusted Certificate	RSA	2040-10-26 04:38:03 -0400	2023-07-21 17:57:36 -0400
buypassclass3ca [jdk]	Trusted Certificate	RSA	2040-10-26 04:28:58 -0400	2023-07-21 17:57:36 -0400
camerfirmchambersca [jdk]	Trusted Certificate	RSA	2038-07-31 08:29:50 -0400	2023-07-21 17:57:36 -0400
camerfirmchamberscommerceca [jdk]	Trusted Certificate	RSA	2037-09-30 12:13:44 -0400	2023-07-21 17:57:36 -0400

89 Entries

## 12.2.1 TrustStore Settings Field Descriptions

Field Name	Description
<b>Details</b>	This section contains information on the TrustStore details.
TrustStore Name	The name of the default TrustStore. This is determined by the <a href="#">uc.trustmanager.truststore</a> property.
TrustStore File	The actual file name for the default TrustStore. In most cases, if the <b>TrustStore Name</b> is specified then the <b>TrustStore File</b> will be the same; however, if the <b>TrustStore Name</b> is not specified or is not accessible, then a different default TrustStore may be used (e.g. <code>java-home/lib/security/cacerts</code> ). If the <b>TrustStore File</b> is blank, then no accessible TrustStore could be found and an empty immutable TrustStore will be used instead.
TrustStore Type	The type for the default TrustStore: <ul style="list-style-type: none"> <li>• JKS</li> <li>• PKCS#12</li> </ul>
TrustStore Provider	The provider for the default TrustStore.
TrustStore Password	The password for the default TrustStore. A masked value will be show if the TrustStore password is specified; otherwise, it will be blank.
<b>Entries</b>	This section contains information on the TrustStore entries.
Alias	Unique entry name.
Type	Entries can be one of the following types: <ul style="list-style-type: none"> <li>• Private Key</li> <li>• Secret Key</li> <li>• Trusted Certificate</li> </ul>
Algorithm	Key algorithm.
Certificate Expiration	The date and time that the certificate expires.
Created	The date and time that the entry was created.
<b>Buttons</b>	This section identifies the buttons displayed above the TrustStore settings.
Import Trusted Certificate...	Opens a dialog to import a trusted certificate.
Examine Certificate...	Opens details for the selected entry.
Delete 	Deletes selected entry from the TrustStore.

## 12.3 Certificate Details

**Certificate Details For Entry: affirmtrustcommercialca [jdk]**

**Certificate**

**Details**

Version: 3

Issuer: CN=AffirmTrust Commercial, O=AffirmTrust, C=US

Subject: CN=AffirmTrust Commercial, O=AffirmTrust, C=US

Serial Number: 7777062726A9B17C

Valid From: 2010-01-29 09:06:06 -0500      Valid Until: 2030-12-31 09:06:06 -0500

Signature Algorithm: SHA256withRSA      Public Key Algorithm: 2048-bit RSA

**Fingerprints**

Algorithm	Fingerprint
SHA-1	F9:B5:B6:32:45:5F:9C:BE:EC:57:5F:80:DC:E9:6E:2C:C7:B2:78:B7
SHA-256	03:76:AB:1D:54:C5:F9:80:3C:E4:B2:E2:01:A0:EE:7E:EF:7B:57:B6:36:E8:A9:3C:9B:8D:48:60:C9:6F:5F:A7

### 12.3.1 Certificate Details Field Description

Field Name	Description
<b>Details</b>	This section contains information on the Certificate details.
Version	The version number (1, 2, or 3)
Issuer	The distinguished name (DN) of the certificate’s issuer.
Subject	The distinguished name (DN) of the certificate’s subject (owner).
Serial Number	The serial number generated by the certificate’s issuer.
Valid From	The date and time that the certificate is valid from.
Valid Until	The date and time that the certificate is valid until.
Signature Algorithm	The algorithm used to sign the certificate.
Public Key Algorithm	The algorithm used for the public key.
Fingerprints	The SHA-1 and SHA-256 certificate fingerprints.

## 12.4 Importing a Trusted Certificate

The import does not perform a chain of trust check for the certificate being imported. It is the responsibility of the user to first examine the certificate and verify that the certificate can be trusted before importing it.

**Step 1**

From the [Administration](#) navigation pane, select **TrustStore Settings**. The TrustStore Settings page displays.

The screenshot shows the 'TrustStore Settings' page. At the top, there are two buttons: 'Import Trusted Certificate...' and 'Examine Certificate...'. Below this is a 'TrustStore Settings' section with the following details:

- TrustStore Name: D:\tomcat9\conf\uccacerts.jks
- TrustStore File: D:\tomcat9\conf\uccacerts.jks
- TrustStore Type: JKS
- TrustStore Provider: SUN
- TrustStore Password: [Redacted]

Below the details is an 'Entries' table with the following columns: Alias, Type, Algorithm, Certificate Expiration, and Created. The table contains 15 entries, including aliases like 'affirmtrustcommercialca', 'amazonrootca1', and 'camerfirmachambersca'. At the bottom of the table, it says '89 Entries'.

**Step 2**

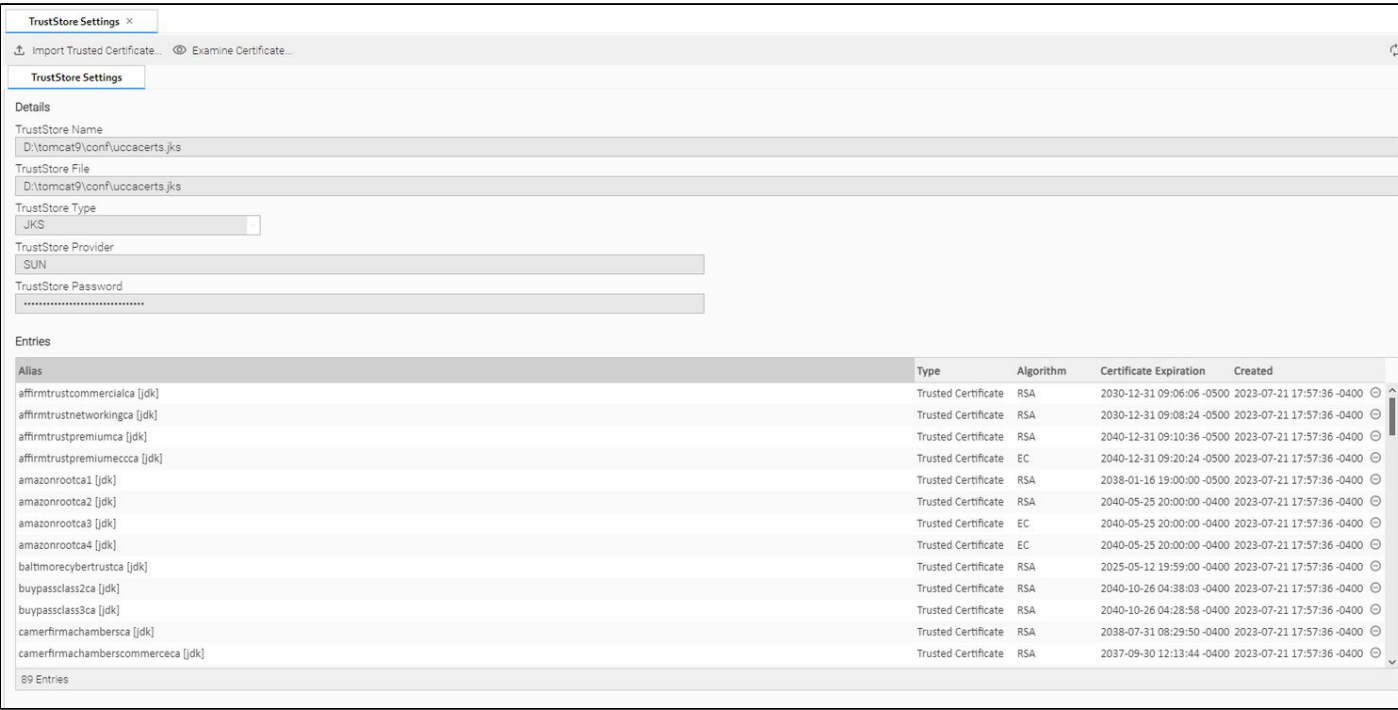
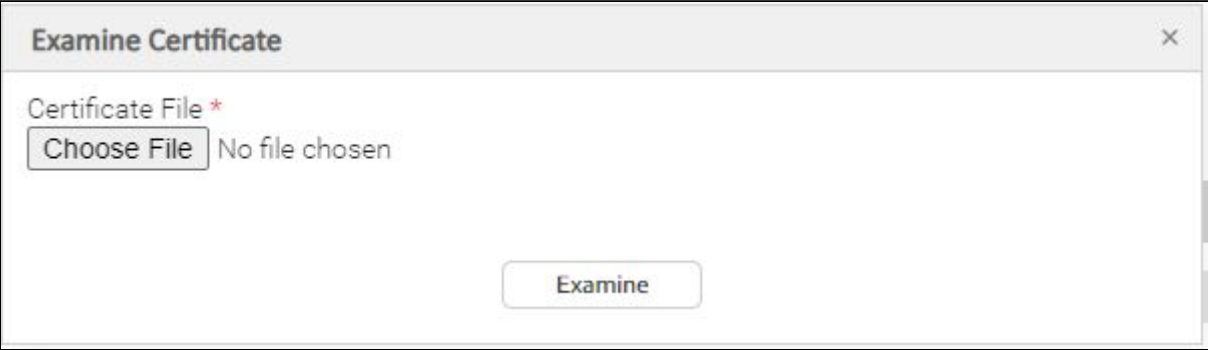
Click the [Import Trusted Certificate...](#) button at the top of the page. The **Import Trusted Certificate** pop-up dialog displays.

The screenshot shows the 'Import Trusted Certificate' dialog box. It contains the following elements:

- A message: *The trusted certificate needs to be imported on each cluster node.*
- A text input field for 'Alias \*'.
- A checkbox for 'Allow Duplicate'.
- A text input field for 'Certificate File \*' with a 'Choose File' button next to it. The text 'No file chosen' is displayed next to the button.
- An 'Import' button at the bottom center.

<b>Step 3</b>	Click <b>Choose File</b> to select the trusted certificate to import and use the <b>Alias</b> field to specify a unique entry name.
<b>Step 4</b>	Click <b>Import</b> .

## 12.5 Examining a Certificate

<b>Step 1</b>	<p>From the <a href="#">Administration</a> navigation pane, select <b>TrustStore Settings</b>. The TrustStore Settings page displays.</p> 
<b>Step 2</b>	<p>Click the <a href="#">Examine Certificate...</a> button at the top of the page. The <b>Examine Certificate</b> pop-up dialog displays.</p> 
<b>Step 3</b>	Click <b>Choose File</b> to select the certificate to examine.

Step 4

Click **Examine**. The **Certificate Details** for the selected file displays.

**Certificate Details For File: sbdemo1.cer**

**Certificate**

**Details**

Version: 3

Issuer: CN=sbdemo1, O=Stonebranch, C=US

Subject: CN=sbdemo1, O=Stonebranch, C=US

Serial Number: 64ECD1A0

Valid From: 2023-08-28 12:56:00 -0400      Valid Until: 2024-08-27 12:56:00 -0400

Signature Algorithm: SHA256withRSA      Public Key Algorithm: 2048-bit RSA

**Fingerprints**

Algorithm	Fingerprint
SHA-1	2C:64:BF:16:BF:49:9F:D2:59:03:FD:2E:7D:F5:7B:99:6A:CD:EF:F4
SHA-256	02:54:B4:94:EE:C7:A7:C0:1E:5D:4B:15:38:94:49:E0:D2:47:65:78:1A:23:44:AF:F8:99:23:28:79:08:9A:93

## 12.6 Viewing Certificate Details for a Trusted Certificate Entry

Step 1

From the **Administration** navigation pane, select **TrustStore Settings**. The TrustStore Settings page displays.

**TrustStore Settings** ×

Import Trusted Certificate... Examine Certificate...

**TrustStore Settings**

**Details**

TrustStore Name: D:\tomcat9\conf\uccacerts.jks

TrustStore File: D:\tomcat9\conf\uccacerts.jks

TrustStore Type: JKS

TrustStore Provider: SUN

TrustStore Password: .....

**Entries**

Alias	Type	Algorithm	Certificate Expiration	Created
affirmtrustcommercialca [jdk]	Trusted Certificate	RSA	2030-12-31 09:06:06 -0500	2023-07-21 17:57:36 -0400
affirmtrustnetworkingca [jdk]	Trusted Certificate	RSA	2030-12-31 09:08:24 -0500	2023-07-21 17:57:36 -0400
affirmtrustpremiumca [jdk]	Trusted Certificate	RSA	2040-12-31 09:10:36 -0500	2023-07-21 17:57:36 -0400
affirmtrustpremiumeccca [jdk]	Trusted Certificate	EC	2040-12-31 09:20:24 -0500	2023-07-21 17:57:36 -0400
amazonrootca1 [jdk]	Trusted Certificate	RSA	2038-01-16 19:00:00 -0500	2023-07-21 17:57:36 -0400
amazonrootca2 [jdk]	Trusted Certificate	RSA	2040-05-25 20:00:00 -0400	2023-07-21 17:57:36 -0400
amazonrootca3 [jdk]	Trusted Certificate	EC	2040-05-25 20:00:00 -0400	2023-07-21 17:57:36 -0400
amazonrootca4 [jdk]	Trusted Certificate	EC	2040-05-25 20:00:00 -0400	2023-07-21 17:57:36 -0400
baltimorecybertrustca [jdk]	Trusted Certificate	RSA	2025-05-12 19:59:00 -0400	2023-07-21 17:57:36 -0400
buypassclass2ca [jdk]	Trusted Certificate	RSA	2040-10-26 04:38:03 -0400	2023-07-21 17:57:36 -0400
buypassclass3ca [jdk]	Trusted Certificate	RSA	2040-10-26 04:28:58 -0400	2023-07-21 17:57:36 -0400
camerfirmchambersca [jdk]	Trusted Certificate	RSA	2038-07-31 08:29:50 -0400	2023-07-21 17:57:36 -0400
camerfirmchamberscommerceca [jdk]	Trusted Certificate	RSA	2037-09-30 12:13:44 -0400	2023-07-21 17:57:36 -0400

89 Entries

Step 2

Right-click on an entry in the **Entries** section to display an action menu and click **View Certificate Details**. The Certificate Details for the selected entry displays.

**Certificate Details For Entry: sbdemo1**

**Certificate**

**Details**

Version: 3

Issuer: CN=sbdemo1, O=Stonebranch, C=US

Subject: CN=sbdemo1, O=Stonebranch, C=US

Serial Number: 64ECD1A0

Valid From: 2023-08-28 12:56:00 -0400      Valid Until: 2024-08-27 12:56:00 -0400

Signature Algorithm: SHA256withRSA      Public Key Algorithm: 2048-bit RSA

**Fingerprints**

Algorithm	Fingerprint
SHA-1	2C:64:BF:16:BF:49:9F:D2:59:03:FD:2E:7D:F5:7B:99:6A:CD:EF:F4
SHA-256	02:54:B4:94:EE:C7:A7:C0:1E:5D:4B:15:38:94:49:E0:D2:47:65:78:1A:23:44:AF:F8:99:23:28:79:08:9A:93

## 12.7 Deleting a TrustStore Entry

Step 1

From the [Administration](#) navigation pane, select **TrustStore Settings**. The TrustStore Settings page displays.

TrustStore Settings ×

Import Trusted Certificate... Examine Certificate...

**TrustStore Settings**

**Details**

TrustStore Name: D:\tomcat9\conf\jucacerts.jks

TrustStore File: D:\tomcat9\conf\jucacerts.jks

TrustStore Type: JKS

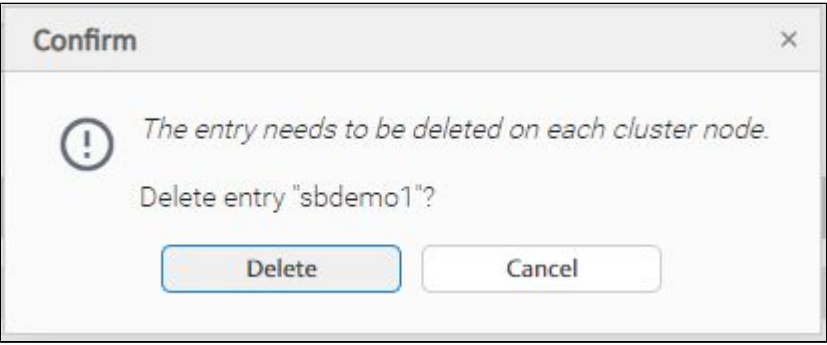
TrustStore Provider: SUN

TrustStore Password: .....

**Entries**

Alias	Type	Algorithm	Certificate Expiration	Created
affintrustcommercialca [jdk]	Trusted Certificate	RSA	2030-12-31 09:06:06 -0500	2023-07-21 17:57:36 -0400
affintrustnetworkingca [jdk]	Trusted Certificate	RSA	2030-12-31 09:08:24 -0500	2023-07-21 17:57:36 -0400
affintrustpremiumca [jdk]	Trusted Certificate	RSA	2040-12-31 09:10:36 -0500	2023-07-21 17:57:36 -0400
affintrustpremiumeccca [jdk]	Trusted Certificate	EC	2040-12-31 09:20:24 -0500	2023-07-21 17:57:36 -0400
amazonrootca1 [jdk]	Trusted Certificate	RSA	2038-01-16 19:00:00 -0500	2023-07-21 17:57:36 -0400
amazonrootca2 [jdk]	Trusted Certificate	RSA	2040-05-25 20:00:00 -0400	2023-07-21 17:57:36 -0400
amazonrootca3 [jdk]	Trusted Certificate	EC	2040-05-25 20:00:00 -0400	2023-07-21 17:57:36 -0400
amazonrootca4 [jdk]	Trusted Certificate	EC	2040-05-25 20:00:00 -0400	2023-07-21 17:57:36 -0400
baltimorecybertrustca [jdk]	Trusted Certificate	RSA	2029-05-12 19:59:00 -0400	2023-07-21 17:57:36 -0400
buypassclass2ca [jdk]	Trusted Certificate	RSA	2040-10-26 04:38:03 -0400	2023-07-21 17:57:36 -0400
buypassclass3ca [jdk]	Trusted Certificate	RSA	2040-10-26 04:28:58 -0400	2023-07-21 17:57:36 -0400
camerfirmachambersca [jdk]	Trusted Certificate	RSA	2038-07-31 08:29:50 -0400	2023-07-21 17:57:36 -0400
camerfirmachamberscommerceca [jdk]	Trusted Certificate	RSA	2037-09-30 12:13:44 -0400	2023-07-21 17:57:36 -0400

89 Entries

<b>Step 2</b>	<p>Right-click on an entry in the <b>Entries</b> section to display an action menu and click <b>Delete</b>. The <b>Confirm</b> deletion dialog displays.</p> 
<b>Step 3</b>	<p>Click <b>Delete</b>.</p>

# 13 LDAP Settings

## 13.1 Overview

**Note**

The information provided on this page assumes you have a working knowledge of LDAP authentication.

LDAP Settings, which allow you to enable the LDAP bridge for both UNIX and Windows operating systems, are available through the user interface.

You can set up Universal Controller to use LDAP authentication for:

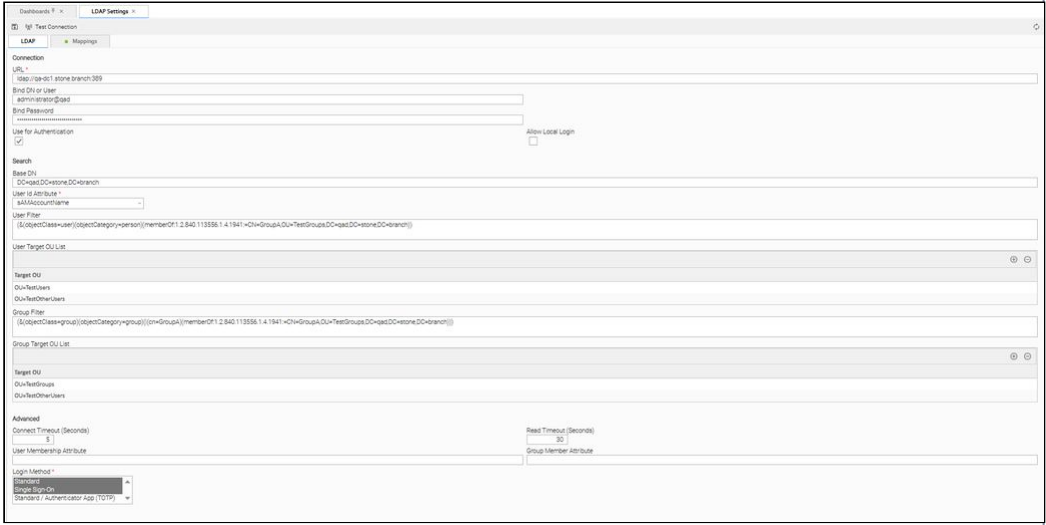

- [Credentials for running tasks](#)
- [User logins](#)

## 13.2 Credentials for Running Tasks Authentication

To use LDAP authentication for Universal Controller [user credentials](#):

<p><b>UNIX</b></p>	<p>If you want the credentials for Universal Agent to go through LDAP authentication, the UNIX machine on which the Agents reside require PAM. The Agents must be configured to use PAM, and PAM must be configured to use LDAP.</p> <p>The UNIX systems that support PAM authentication are AIX, HP-UX, Linux, and Solaris. Refer to <a href="#">Security of Universal Agent Components</a> to see which Agent Server components can use PAM authentication on these systems.</p> <p>Set up your PAM configuration to use the PAM LDAP module. Depending on your LDAP version, some other configuration steps may be required. Once PAM is configured, tasks specifying credentials will authenticate over LDAP transparently.</p>
<p><b>Windows</b></p>	<p>While no set-up steps are required to specifically enable Domain/Active Directory credential authentication, the target system does need to belong to a Domain or Active Directory Forest. When you specify credentials for a task, use DOMAIN\user as the user name.</p>

## 13.3 User Login Authentication

<p><b>Step 1</b></p>	<p>From the <a href="#">Administration</a> navigation pane, select <b>Configuration &gt; LDAP Settings</b>. The LDAP Settings page displays.</p> 
<p><b>Step 2</b></p>	<p>Enter / select your LDAP Settings, using the <a href="#">field descriptions</a> below as a guide.</p> <ul style="list-style-type: none"> <li>• Required fields display an asterisk ( * ) after the field name.</li> <li>• Default values for fields, if available, display automatically.</li> </ul>
<p><b>Step 3</b></p>	<p>Click the  button.</p>

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

### Note

In order to log in to the Controller using LDAP, you must set the [LDAP Synchronization Enabled](#) Universal Controller System property (**Administration > Configuration > Properties** in the Controller user interface) to **true**.

## 13.4 LDAP Settings Field Descriptions

The following table describes the fields and buttons that display in the LDAP Settings.

Field Name	Description
<b>Connection</b>	This section contains information on the LDAP connection.

URL	<p>URL of the LDAP connection. For example:</p> <ul style="list-style-type: none"> <li>• <code>ldap://ldap.stonebranch.com:389/</code></li> <li>• <code>ldaps://192.202.185.90:636/</code></li> </ul> <p>To use SSL/TLS encryption ( <code>ldaps://</code> ), you will have to configure the Universal Controller <a href="#">truststore</a> with an X.509 CA certificate in either of these formats:</p> <ul style="list-style-type: none"> <li>• DER-encoded binary</li> <li>• Base64-encoded</li> </ul> <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p>You can also specify a space-separated list of URLs. Universal Controller will attempt to use each URL in turn until a successful connection is created.</p> <p>For example, <code>ldap://ldap1.stonebranch.com:389/ ldap://ldap2.stonebranch.com:389/</code></p> </div>
Bind DN or User	Distinguished Name (DN) or User ID used for initial access to the LDAP server.
Bind Password	Password associated with the Bind ND or User.
Use for Authentication	If enabled, indicates that LDAP will be used for password authentication.
Allow Local Login	<p>If the <a href="#">LDAP Synchronization Enabled</a> Universal Controller system property is false, or if it is true but the <a href="#">Use for Authentication</a> field is not enabled, an administrator must explicitly specify <a href="#">Allow Local Login</a> to allow local account login for users that were provisioned through LDAP synchronization.</p> <p>This option is intended only to provide temporary access while an LDAP directory is unavailable.</p> <p>An administrator will need to update the local account password for any LDAP-synchronized user who requires temporary local account login, as the provisioned password would be unknown.</p>
<b>Search</b>	This section contains search information.
Base DN	Starting point for searching the directory. For example: <code>dc=stonebranch,dc=com</code> . If you do not specify a Base DN, the search starts as the root of the directory tree.
User Id Attribute	<p>LDAP attribute for the specified <a href="#">User ID</a>.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• sAMAccountName</li> <li>• cn</li> <li>• uid</li> <li>• Other...</li> </ul>
User Filter	<p>Search filter for users.</p> <p>If you do not specify a User Filter, the server uses <code>(&amp;(objectClass=user)(objectCategory=person))</code> .</p>
User Target OU List	<p>Single- or multi-level target OU's (Organizational Units) within the <a href="#">Base DN</a> directory to filter for user records.</p> <p>For example, <code>OU=Employees</code> or <code>OU=Employees,OU=Users</code> .</p> <p>If you do not specify one or more OU's, the entire sub-tree from the <a href="#">Base DN</a> will be searched.</p>

Group Filter	<p>Search filter for groups.</p> <p>If you do not specify a Group Filter, the server uses <code>(&amp;(objectClass=group)(objectCategory=group))</code>.</p>
Group Target OU List	<p>Single- or multi-level target OU's within the <a href="#">Base DN</a> directory to filter for group records.</p> <p>For example, <code>OU=Universal Controller</code> or <code>OU=Universal Controller,OU=Groups</code>.</p> <p>If you do not specify one or more OU's, the entire sub-tree from the <a href="#">Base DN</a> will be searched.</p>
<b>Advanced</b>	This section contains advanced information.
Connection Timeout (Seconds)	Timeout for connecting to the LDAP server.
Read Timeout (Seconds)	Timeout for reading from the LDAP server.
User Membership Attribute	LDAP attribute for the groups in which a user is a member. If you do not specify a User Membership Attribute, the LDAP server uses <b>memberOf</b> (see the <code>uc.ldap.users.synchronize_indirect</code> <a href="#">Universal Controller start-up property</a> ).
Group Member Attribute	LDAP attribute for the members of a group. If you do not specify a Group Member Attribute, the LDAP server uses <b>member</b> (see the <code>uc.ldap.groups.update_members</code> <a href="#">Universal Controller start-up property</a> ).
Login Method	<p>Login method(s) that an LDAP-provisioned user can authenticate with by default. The default is applied only at user creation time.</p> <p>You can use the Ctrl key to select multiple methods.</p> <p>Only one of <b>Standard</b> or <b>Standard / Authenticator App (TOTP)</b> can be selected, not both.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard</li> <li>• Single Sign-On</li> <li>• Standard / Authenticator App (TOTP)</li> </ul>
<b>Buttons</b>	This section identifies the buttons displayed above and below the LDAP Settings that let you perform various actions.
<b>Update</b>	Saves updates to the record.
<b>Test Connection</b>	After saving the LDAP Settings to the database, click <b>Test Connection</b> to run a connection test.
<b>Refresh</b>	Refreshes any dynamic data displayed in the LDAP Settings.
<b>Tabs</b>	This section identifies the tabs across the top of the LDAP Settings page that provide access to additional information about the LDAP Settings.
<b>Mappings</b>	List of User and Group columns mapped to LDAP attributes that enables you to customize how the User/Group records get populated from LDAP.

## 13.5 Mappings Tab

The Mappings tab of the LDAP Settings page displays a list of Controller columns mapped to LDAP attributes.

Type	Column	Attribute	Updated By	Updated
User	Manager	manager	ops.system	2014-09-25 20:00:00 -0400
User	Business Phone	telephoneNumber	ops.system	2014-09-25 20:00:00 -0400
User	Department	department	ops.system	2014-09-25 20:00:00 -0400
User	First Name	givenName	ops.system	2014-09-25 20:00:00 -0400
User	Last Name	sn	ops.system	2014-09-25 20:00:00 -0400
User	Mobile Phone	mobile	ops.system	2014-09-25 20:00:00 -0400
User	Home Phone	homePhone	ops.system	2014-09-25 20:00:00 -0400
User	Email	mail	ops.system	2014-09-25 20:00:00 -0400
User	Title	title	ops.system	2014-09-25 20:00:00 -0400
User	Middle Name	initials	ops.system	2014-09-25 20:00:00 -0400
Group	Manager	managedBy	ops.system	2014-09-25 20:00:00 -0400
Group	Email	mail	ops.system	2014-09-25 20:00:00 -0400
Group	Description	description	ops.system	2014-09-25 20:00:00 -0400

### 13.5.1 Mappings Tab Column Descriptions

The following table describes the default columns displayed on the Mappings tab:

Type	Type of records.
Column	Controller column being mapped to LDAP attribute.
Attribute	LDAP attribute to which the Controller column is being mapped.
Updated By	User who last updated this record.
Updated	Date and time this record was last updated.

### 13.5.2 Mapping Details

To view the Mapping Details for a mapping on the list, click the Details icon next to that mapping.

For example:

**Mapping Details**

Mapping

Details

Type: User

Column: Manager

Attribute: manager

## 13.6 Best Practices

The following best practices are provided to assist you in configuring LDAP.

### 13.6.1 Determining your User OUs and Group OUs

1. Determine which users/groups need to have access to Universal Controller.
2. Determine which Organizational Units (OUs) those users/groups belong to.
3. Build your list of user and group OUs.

Consider the following organizational units for required Users and Groups.

#### Users

OU=NorthAmerica,OU=CorporateUsers,OU=Corporate,DC=stonebranch,DC=com
OU=Students,OU=Corporate,DC=stonebranch,DC=com

#### Groups

OU=AtlantaGroup,OU=CorporateGroups,OU=Corporate,DC=stonebranch,DC=com
OU=OntarioGroup,OU=CorporateGroups,OU=Corporate,DC=stonebranch,DC=com
OU=OtherGroups,OU=Corporate,DC=stonebranch,DC=com

You specify the User and Group Target OUs relative from the [Base DN](#). In this case, the Base DN would be **OU=Corporate,DC=stonebranch,DC=com**.

For the [User Target OU List](#) LDAP Settings field, you would have the following entries:

OU=NorthAmerica,OU=CorporateUsers
OU=Students

For the [Group Target OU List](#) LDAP Settings field, you would have the following entries:

OU=AtlantaGroup,OU=CorporateGroups
OU=OntarioGroup,OU=CorporateGroups
OU=OtherGroups

## 13.6.2 Customizing Users and Groups Lists to see DN of LDAP Synchronized Users and Groups

For each User and Group object in the LDAP directory that matches the configured search and OU configuration in Universal Controller, a User and Group record are created in the Controller to represent those objects.

For each User and Group record in the Controller that represents a synchronized LDAP User or Group, the **Source** column on the [Users list](#) or [Groups List](#), respectively, contains the Distinguished Name of that User or Group in LDAP. (For Users and Groups created locally in the Controller, the **Source** column is blank.)

For example:

<b>Source Column for a User</b>	ldap:CN=Stonebranch User,OU=TestUsers,DC=qad,DC=stone,DC=branch
<b>Source Column for a Group</b>	ldap:CN=UnvControllerParent,OU=TestGroups,DC=qad,DC=stone,DC=branch

### Note

By default, the **Source** column is not shown on either lists. For instructions on how to add the **Source** column, see [Selecting Columns / Column Locations for a List](#).

## 13.6.3 LDAP Server Operations

If LDAP is configured for Universal Controller, it refreshes every 24 hours.

Additionally, the Controller provides two [Server Operations](#) that let you force an LDAP refresh:

- **LDAP Refresh (Asynchronous)**  
This server operation performs an LDAP refresh in the background and sends entries to the Universal Controller log.
- **LDAP Refresh**  
This server operation perform an LDAP refresh that writes all log entries to the user interface as well as to the log, and prevents all other user activity while the process is running. If you estimate the refresh could take a considerable amount of time, we recommend you use the **LDAP Refresh (Asynchronous)** server operation.

## 13.6.4 LDAP Settings Fields

The following Best Practices should be followed for specific fields in the LDAP Settings.

### 13.6.4.1 URL

To avoid an inadvertent synchronization of LDAP using an incomplete LDAP configuration, refrain from providing a value for this setting until LDAP configuration has been completed.

Once LDAP configuration has been completed, you can utilize the [LDAP Refresh server operation](#) to verify your configuration.

### 13.6.4.2 Base DN

All directory searches are relative from the base object defined by the specified DN. The Base DN (or search entry point) should be the lowest base object in the directory for which both the User and Group OUs can be searched from.

If your Users are in:	<b>OU=CorporateUsers,OU=Corporate,DC=stonebranch,DC=com</b>
And your Groups are in:	<b>OU=CorporateGroups,OU=Corporate,DC=stonebranch,DC=com</b>
Your Base DN can be:	<b>OU=Corporate,DC=stonebranch,DC=com</b>

### 13.6.4.3 User Filter

This setting defines which objects the Controller considers as Users when it queries objects in the configured User OUs (see pointers on configuring User OUs).

By default, the server will use filter **(&(objectClass=user)(objectCategory=person))**.

<b>For Active Directory (AD)</b>	<p>At a minimum, specify the following:</p> <pre>(&amp;(objectClass=user)(objectCategory=person))</pre> <p>This filter would match both user and <b>inetOrgPerson objectClasses</b>. <b>objectCategory=person</b> is added for two reasons:</p> <ul style="list-style-type: none"> <li>• It is an indexed attribute, so the query performance is optimized.</li> <li>• Without it, Computer objects could be synchronized.</li> </ul> <p>For example, in AD, a computer <b>objectClass</b> extends from a user <b>objectClass</b>, but a computer's <b>objectCategory=computer</b>, not <b>person</b>.</p>
----------------------------------	--

#### Note

Once an object (User or Group) is synchronized into the Controller, it will not be deleted if search filter/OU criteria are narrowed. However, broadening your search filter/OU scope will pull in new objects. After modifying your LDAP configuration to narrow the search scope, a Controller administrator will need to delete any Users and Groups that are no longer desired/match the LDAP configuration.

You can synchronize Users that belong only to a specific Group, such as one created for Universal Controller.

For example:

```
CN=UnvControllerGroup,OU=CorporateGroups,OU=Corporate,DC=stonebranch,DC=com
```

To ensure that only Users belonging to **UnvControllerGroup** are synchronized, modify the recommended minimum user search filter:

```
(&(objectClass=user)(objectCategory=person)
(memberOf=CN=UnvControllerGroup,OU=CorporateGroups,OU=Corporate,DC=stonebranch,DC=com))
```

You can synchronize Users that belong any Group that is a descendant of **UnvControllerGroup**.

For example:

- **UnvControllerGroupA** is a member of **UnvControllerGroup**.
- **UnvControllerGroupB** is a member of **UnvControllerGroupA**.

- **UnvControllerGroupC** is a member of **UnvControllerGroupB**.

To achieve this in AD, modify the search filter used to synchronize users that belong only to a specific Group:

```
(&(objectClass=user)(objectCategory=person)
(memberOf:1.2.840.113556.1.4.1941:=CN=UnvControllerGroup,OU=CorporateGroups,OU=Corporate,DC=stonebranch,DC=com)))
```

Essentially, replacing **memberOf** with **memberOf:1.2.840.113556.1.4.1941:** will ensure that nested groups are considered.

**1.2.840.113556.1.4.1941** (Matching rule OID) is a special "extended match operator" that walks the chain of ancestry in objects all the way to the root until it finds a match (see [http://msdn.microsoft.com/en-us/library/windows/desktop/aa746475\(v=vs.85\).aspx](http://msdn.microsoft.com/en-us/library/windows/desktop/aa746475(v=vs.85).aspx)).

### 13.6.4.4 Group Filter

This setting defines which objects the Controller considers as Groups when it queries objects in the configured Group OUs (see pointers on configuring Group OUs).

By default, the server will use filter **(&(objectClass=group)(objectCategory=group))**.

<p><b>For Active Directory (AD)</b></p>	<p>It is recommended that you optimize the query performance by incorporating the indexed <b>objectCategory</b> attribute:</p> <pre>(&amp;(objectClass=group)(objectCategory=group))</pre>
---	--

To limit the Groups synchronized from LDAP to a few specific Groups or Groups by name, adjust the Group search filter to include a query on the CN (common name) attribute.

For example, to synchronize a single group named **CN=UnvControllerGroup,OU=CorporateGroups,OU=Corporate,DC=stonebranch,DC=com**, modify the recommended minimum group search filter:

```
(&(objectClass=group)(objectCategory=group)(cn=UnvControllerGroup))
```

To synchronize only **UnvControllerGroupA**, **UnvControllerGroupB**, and **UnvControllerGroupC**, use the following filter:

```
(&(objectClass=group)(objectCategory=group)(|(cn=UnvControllerGroupA)(cn=UnvControllerGroupB)(cn=UnvControllerGroupC)))
```

To synchronize any Group that is a (direct) member of **UnvControllerGroup**, use the following search filter:

```
(&(objectClass=group)(objectCategory=group)(|(cn=UnvControllerGroup)
(memberOf=CN=UnvControllerGroup,OU=CorporateGroups,OU=Corporate,DC=stonebranch,DC=com)))
```

To synchronize any Group that is a descendant of **UnvControllerGroup** (multi-nested groups), use the following search filter:

```
(&(objectClass=group)(objectCategory=group)(|(cn=UnvControllerGroup)
(memberOf:1.2.840.113556.1.4.1941:=CN=UnvControllerGroup,OU=CorporateGroups,OU=Corporate,DC=stonebranch,DC=com)
))
```

Essentially, replacing **memberOf** with **memberOf:1.2.840.113556.1.4.1941:** will ensure that nested groups are considered.

**1.2.840.113556.1.4.1941** (matching rule OID) is a special "extended match operator" that walks the chain of ancestry in objects all the way to the root until it finds a match (see [http://msdn.microsoft.com/en-us/library/windows/desktop/aa746475\(v=vs.85\).aspx](http://msdn.microsoft.com/en-us/library/windows/desktop/aa746475(v=vs.85).aspx)).

If you do not want to synchronize Groups:

1	Do not explicitly specify a value for the Group search filter.
2	Do not specify any target Group OUs (organizational units).
3	Ensure that the <a href="#">Universal Controller Start-up Properties</a> file ( <code>uc.properties</code> ) contains the following property configuration: <b>uc.ldap.groups.filter_indirect=true</b>  (If <b>uc.ldap.groups.filter_indirect=true</b> , any Groups synchronized indirectly - that is, through a User's <b>memberOf</b> attribute - will honor the Group Filter and Group Target OU List.)

**Note**

The `uc.ldap.groups.single_parent_per_child` start-up property should be set to **true** only if your Groups being synchronized from AD have at most one parent Group. When synchronizing Groups, the default Controller behavior is to copy the members of a Sub Group into the Parent Group. If this property is set to **true**, the Controller assumes that each Group has, at most, a single Parent Group and will use the Parent field on the Group definition to maintain the hierarchy instead of copying members.

## 13.7 SSL/TLS Secured LDAP (LDAPS)

Universal Controller supports the use of LDAPS instead of the non-encrypted LDAP connection offered in the Controller.

It requires setting up a truststore (keystore) and setting the following properties in the [Universal Controller Start-up Properties \(uc.properties\)](#) file:

- [uc.trustmanager.truststore](#)
- [uc.trustmanager.truststore.password](#)

You must make sure that the LDAP server's certificate exists in the truststore that is referenced by these two properties.

When these configurations have been made, use `ldaps://` for the URL prefix in the [LDAP Settings Field Descriptions](#).

# 14 Password Settings

## 14.1 Overview

Password Settings lets you configure settings for all user passwords.

## 14.2 Password Settings Details

The following Password Settings Details is for the default Password Settings. See the [field descriptions](#) below, for a description of all fields that display in the Password Settings Details.

Password Settings

**Password Complexity Characteristics**

Must Include \*

All Enabled Characteristics

<p>Uppercase Letters [A-Z] <input checked="" type="checkbox"/></p> <p>Lowercase Letters [a-z] <input checked="" type="checkbox"/></p> <p>Numeric Characters [0-9] <input checked="" type="checkbox"/></p> <p>Special Characters <input checked="" type="checkbox"/></p> <p>Special Character Values *</p> <div style="border: 1px solid #ccc; padding: 2px; width: 100%;">~!@#\$%^&amp;*()_+ = - ? / &gt; &lt; { } [ ] ; : .</div>	<p>Uppercase Letters Minimum * <input type="text" value="1"/></p> <p>Lowercase Letters Minimum * <input type="text" value="1"/></p> <p>Numeric Characters Minimum * <input type="text" value="1"/></p> <p>Special Characters Minimum * <input type="text" value="1"/></p>
--	---

**Password Restrictions**

Minimum Length <input type="text"/>	Maximum Length <input type="text" value="10"/>
Disallow Username in Password <input checked="" type="checkbox"/>	
Disallow Password Reuse <input checked="" type="checkbox"/>	Maximum Passwords In History * <input type="text" value="8"/>

**Password Properties**

Password Expiration Enabled <input checked="" type="checkbox"/>	Password Expiration In Days * <input type="text" value="30"/>
Lock Account After Maximum Login Attempts <input checked="" type="checkbox"/>	Maximum Failed Login Attempts * <input type="text" value="5"/>
Maximum Login Attempts Use For LDAP Authentication <input type="checkbox"/>	

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

## 14.3 Password Settings Field Descriptions

The following table describes the fields and buttons that display in the Password Settings.

Field Name	Description
<b>Password Complexity Characteristics</b>	This section defines any requirements that passwords must conform to.
Must Include	Specification for how many of the enabled restrictions the password must include: Options: <ul style="list-style-type: none"> <li>• All Enabled Characteristics</li> <li>• 1 of the Enabled Characteristics</li> <li>• 2 of the Enabled Characteristics</li> <li>• 3 of the Enabled Characteristics</li> </ul>
Uppercase Letters (A-Z)	If enabled, the Uppercase Letters Minimum field displays.
Uppercase Letters Minimum	Minimum number of Uppercase Letters that a Password must contain.
Lowercase Letters (a-z)	If enabled, the Lowercase Letters Minimum field displays.
Lowercase Letters Minimum	Minimum number of Lowercase Letters that a Password must contain.
Numeric Characters (0-9)	If enabled, the Numeric Characters Minimum field displays.
Numeric Characters Minimum	Minimum number of Numeric Characters that a Password must contain.
Special Characters	If enabled, the Special Characters Minimum field and Special Character Values field display.
Special Characters Minimum	Minimum number of Special Characters that a Password must contain.
Special Character Values	Values that comprise the list of Special Characters that can be used in a Password. (Default is all Special Characters on the list.)
<b>Password Restrictions</b>	This section defines any restrictions that passwords must conform to.
Minimum Length	Minimum length of a Password. Value can be empty (null). If specified, it must be a positive integer and not greater than the <b>Maximum Length</b> .
Maximum Length	Maximum length of a Password. Value can be empty (null). If specified, it must be a positive integer and not less than the <b>Minimum Length</b> .
Disallow Username in Password	If enabled, the Username cannot appear within the Password.
Disallow Password Reuse	If enabled, a Password cannot be reused if it has been maintained in Password history, as specified by the <a href="#">Maximum Passwords In History</a> field.
Maximum Passwords in History	Number of previous passwords that are maintained to prevent their reuse. (Maximum is 24.)

Field Name	Description
<b>Password Properties</b>	Properties for the Passwords.  <div style="border: 2px solid orange; padding: 10px;"> <p><b>Note</b> Prior to Universal Controller 6.8.x, these properties were included in the <a href="#">Universal Controller System Properties</a>.</p> </div>
Password Expiration Enabled	If enabled, Passwords can automatically expire.
Password Expiration in Days	Number of days before a Password expires.
Lock Account After Maximum Login Attempts	If enabled, the user account is locked if the Maximum Failed Login Attempts is exceeded.
Maximum Failed Login Attempts	Maximum number of failed login attempts that is allowed.
Maximum Login Attempts Use For LDAP Authentication	If enabled, the user account is locked if the Maximum Failed Login Attempts is exceeded for LDAP.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Password Settings that let you perform various actions.
Update	Saves updates to this record.
Refresh	Refreshes any dynamic data displayed in this record.

# 15 Personal Access Token

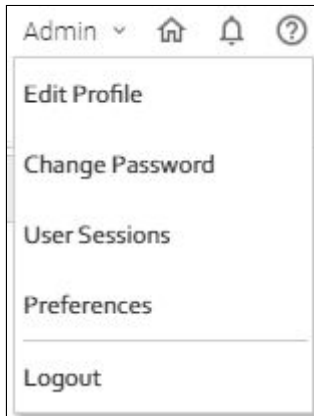
## 15.1 Overview

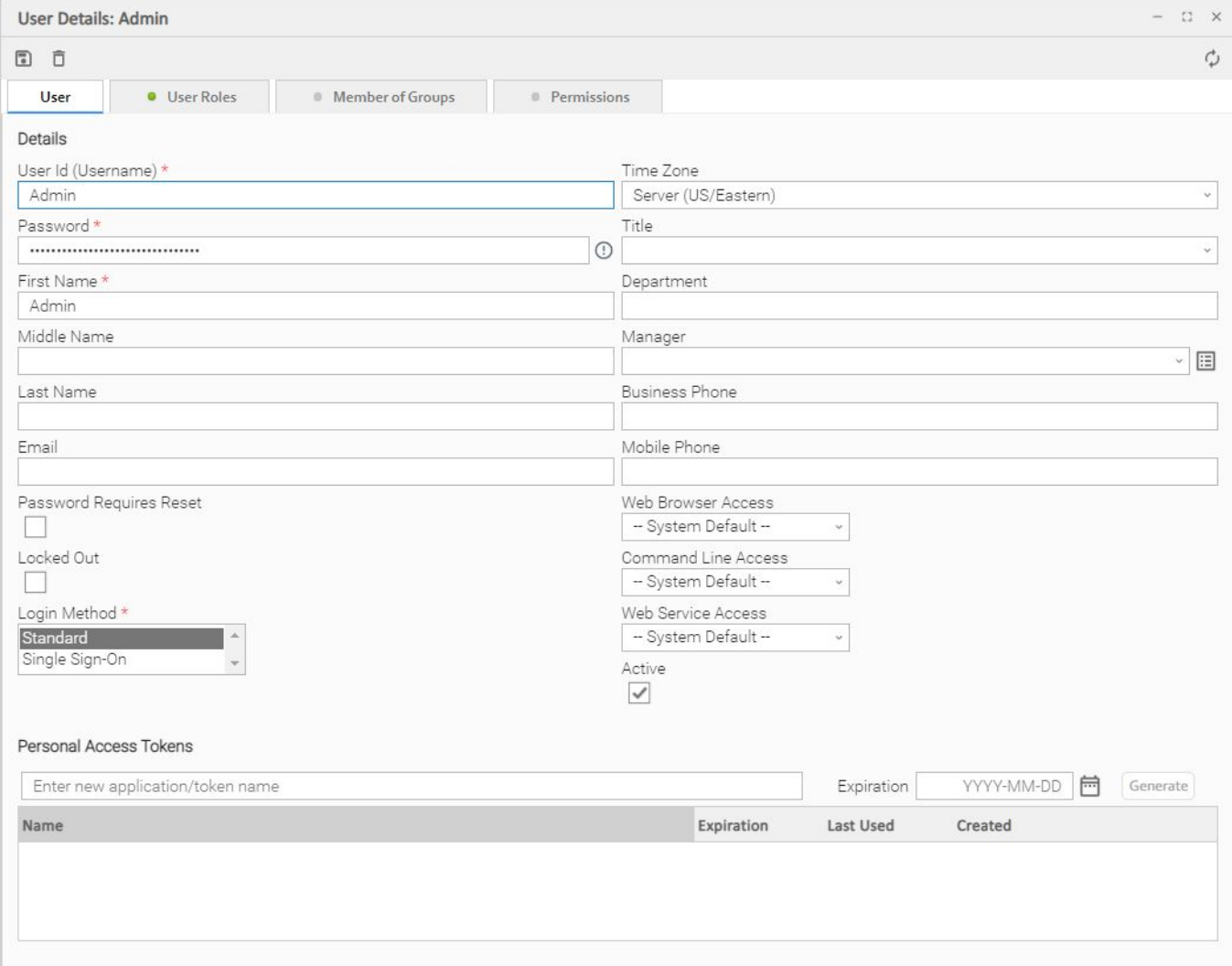

Personal Access Tokens allow users to invoke Web Service APIs by authenticating with a token rather than using their credentials (username and password). Additionally, it provides access to Web Service APIs for users provisioned through Single Sign-On, rather than locally provisioned, or provisioned through LDAP synchronization.

## 15.2 Creating a Personal Access Token

**Step 1**

On the [User task bar](#), click the [User Actions](#) drop-down list arrow to display a menu of user actions.



<p><b>Step 2</b></p>	<p>Click <b>Edit Profile</b>. The <b>User Details</b> dialog pops up.</p> 
<p><b>Step 3</b></p>	<p>At the bottom of the dialog window is the <b>Personal Access Tokens</b> section. Enter an application/token <b>name</b>, optionally specify an <b>expiration</b>, then click <b>Generate</b>.</p>
<p><b>Step 4</b></p>	<p>Copy the token immediately as there is no way to retrieve it again once the user details form is refreshed. Copy the token by selecting the text manually and using Ctrl+C, or by clicking the  icon next to the displayed token.</p>

### 15.3 Personal Access Token Details

<p><b>Name</b></p>	<p>Specifies the name of the application that will access the Universal Controller Web Service APIs using the personal access token.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>The name can be no more than 100 characters.</p> </div>
--------------------	--

<p><b>Expiration</b></p>	<p>Specifies when the personal access token expires. If left unspecified, the token never expires.                  Required if <a href="#">Web Service Personal Access Token Maximum Expiration In Days</a> system property is defined.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>The date value will appear bold and red when the token is expired.</p> </div>
<p><b>Last Used</b></p>	<p>Specifies when the personal access token was last used for Web Service API authentication.</p>
<p><b>Created</b></p>	<p>Specifies when the personal access token was created.</p>

# 16 Properties

## 16.1 Overview

Universal Controller contains three types of configurable properties:

<p><a href="#">Universal Controller Start-up Properties (uc.properties)</a></p>	<p>Universal Controller start-up properties are the default properties contained in the <a href="#">uc.properties</a> file when the Controller is installed. These properties are required for Controller start-up and operation.</p> <p>The values for these properties are set during the installation process. Some of the values are based on information that you provide during the installation.</p> <p>You can reset these properties by stopping the Controller, editing <a href="#">uc.properties</a>, and restarting the Controller. The changes will take effect after the restart (see <a href="#">Starting and Stopping Universal Controller</a>).</p>
<p><a href="#">Universal Controller System Properties</a></p>	<p>Universal Controller system properties define Controller system information and performance. They have their values set during installation.</p> <p>You can reset these properties at any time, without having to stop the Controller, via the user interface.</p> <div data-bbox="699 1104 1535 1312" style="border: 1px solid orange; padding: 5px;"> <p><b>Note</b></p> <p>In a <a href="#">High Availability</a> environment, all Universal Controller cluster nodes share the same database; therefore, updating Universal Controller System Properties for one cluster node applies to all cluster nodes.</p> </div>
<p><a href="#">Command Line Interface (CLI) Properties</a></p>	<p>CLI provides a sample configuration file, <code>cmdtools.props</code>, that you can use to pass CLI Global parameters to a CLI command.</p>

**Note**

Properties for Universal Message Service (OMS) are installed as [configuration file options](#) when OMS is installed as a component of Universal Agent. The values for these options are set during the installation. There are several [configuration methods](#) available for changing these values.

## 16.2 Universal Controller Start-up Properties (uc.properties)

The `uc.properties` file is read by the Controller, which is started by Tomcat.

The **uc.properties** file resides here:

```
[tomcat directory]\conf
```

**Note**

The backslash character in a property value must be escaped as a double backslash.

For example:

```
example.path=c:\\stonebranch\\uc
```

Property Name	Description	Default
<b>For MySQL:</b>		
<code>uc.db.mysql.character_encoding</code>	<p>Allows the retrieval of output with extended unicode characters. If the property is not set, character encoding will not be used in the JDBC URL.</p> <p>Examples:</p> <pre>uc.db.mysql.character_encoding=US-ASCII uc.db.mysql.character_encoding=Cp1252 uc.db.mysql.character_encoding=UTF-8</pre>	
<code>uc.db.rdbms=mysql</code>	Database type. Specify this property if you are using a MySQL database.	
<code>uc.db.url=jdbc:mysql://localhost/</code>	JDBC connect URL. Specify this property if you are using a MySQL database.	
<b>For SQLServer</b>		
<code>uc.db.rdbms=sqlserver</code>	Database type. Specify this property if you are using a SQLServer database.	
<code>uc.db.url=jdbc:sqlserver://localhost:1433;DatabaseName=uc</code>	JDBC connect URL. Specify this property if you are using a SQLServer database.	

Property Name	Description	Default
<b>For Oracle</b>		
<code>uc.db.rdbms=oracle</code>	Database type. Specify this property if you are using an Oracle database.	
<code>uc.db.url=jdbc:oracle:thin:@//localhost:1521/@oracle.db.name@</code>	JDBC connect URL. Specify this property if you are using an Oracle database.	
<b>For All Databases</b>		
<code>uc.db.name</code>	<div style="border: 2px solid red; padding: 5px; margin-bottom: 5px;"> <p><b>IMPORTANT</b></p> <p>If you specify a database name in this property and in <b>uc.db.url</b>, the names must be the same.</p> </div> <p>Name for the Controller database.</p>	uc
<code>uc.db.password</code>	<p>Database password that will be replaced by <b>uc.db.password.encrypted</b> in the <b>uc.properties</b> file upon start-up.</p> <p>The <b>uc.properties</b> file is refreshed every 5 minutes to accommodate changes to this property without requiring a restart. Every 5 minutes, <b>uc.properties</b> is read, and if this property value has changed, then that new value will be used within the Controller.</p>	(none)
<code>uc.db.password.encrypted</code>	Encrypted version of <b>uc.db.password</b> that will replace <b>uc.db.password</b> in the <b>uc.properties</b> file upon start-up.	(none)
<code>uc.db.pooler.connections</code>	<p>Sets the minimum number of idle connections to maintain in the Server connection pool, or zero to create none.</p> <p>The Server connection pool is used by all internal database transactions.</p>	1
<code>uc.db.pooler.connections.Client</code>	<p>Sets the minimum number of idle connections to maintain in the Client connection pool, or zero to create none.</p> <p>The Client connection pool is used by all user interface related database transactions.</p>	1

Property Name	Description	Default
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;">uc.db.pooler.connections.max</div>	<p>Sets the maximum number of connections that can be allocated by the Server connection pool at a given time.</p> <p>The Server connection pool is used by all internal database transactions.</p> <div style="border: 2px solid #ffc107; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>The installer overrides the default by configuring a maximum number of 40 in the <b>uc.properties</b> file.</p> </div>	30
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;">uc.db.pooler.connections.max.Client</div>	<p>Sets the maximum number of connections that can be allocated by the Client connection pool at a given time.</p> <p>The Client connection pool is used by all user interface related database transactions.</p>	30
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;">uc.db.pooler.connections.max.Reserved</div>	<p>Sets the maximum number of connections that can be allocated by the Reserved connection pool at a given time.</p> <p>The Reserved connection pool is used by all critical internal database transactions.</p>	30
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;">uc.db.pooler.connections.Reserved</div>	<p>Sets the minimum number of idle connections to maintain in the Reserved connection pool, or zero to create none.</p> <p>The Reserved connection pool is used by all critical internal database transactions.</p>	1

Property Name	Description	Default
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">uc.db.secrets_provider</div>	<p>Specifies which secrets provider to use for the password.</p> <p>If left unspecified, Universal Controller is assumed to be the provider, and the controller will continue to load the password from the uc.properties using one of the following properties.</p> <ul style="list-style-type: none"> <li>• <code>uc.db.password</code></li> <li>• <code>uc.db.password.encrypted</code></li> </ul> <div style="border: 2px solid orange; padding: 10px; margin: 10px 0;"> <p><b>Note</b></p> <p>Property <code>uc.db.password</code> is immediately saved back as <code>uc.db.password.encrypted</code> with an encrypted value.</p> </div> <p>If property <code>uc.db.secrets_provider</code> is specified, it must be one of the following values, otherwise, a failure will be logged and <code>uc.properties</code> must be refreshed.</p> <ul style="list-style-type: none"> <li>• <code>uc.db.secrets_provider=uc</code> (or not specified) - Universal Controller</li> <li>• <code>uc.db.secrets_provider=aws_secrets_manager</code> - <a href="#">AWS Secrets Manager</a></li> <li>• <code>uc.db.secrets_provider=azure_key_vault</code> - <a href="#">Azure Key Vault</a></li> <li>• <code>uc.db.secrets_provider=cyberark_credential_provider</code> - <a href="#">CyberArk Credential Provider</a></li> <li>• <code>uc.db.secrets_provider=cyberark_central_credential_provider</code> - <a href="#">CyberArk Central Credential Provider</a></li> </ul> <p>The controller will then load all the properties associated with the specified provider.</p> <p>See <a href="#">Secrets Provider Properties</a> for the properties associated with each provider.</p>	(none)
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">uc.db.url.append.properties</div>	<p>Allows additional options to be appended to the JDBC URL generated by Universal Controller.</p> <p>Example:</p> <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <pre>uc.db.url.append.properties=&amp;verifyServerCertificate=false&amp;useSSL=true</pre> </div>	(none)
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;">uc.db.user</div>	<p>Login ID that the Controller will use to log in to your database.</p> <p>The <code>uc.properties</code> file is refreshed every 5 minutes to accommodate changes to this property without requiring a restart. Every 5 minutes, <code>uc.properties</code> is read, and if this property value has changed, then that new value will be used within the Controller.</p>	root
<p><b>For LDAP:</b></p>		

Property Name	Description	Default
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"> <code>uc.ldap.groups.filter_indirect</code> </div>	<p>When this property is set to true, any Groups synchronized indirectly (that is, through a User's <b>memberOf</b> attribute) will honor the Group search filter and Group OU filters under the LDAP Advanced Settings section.</p> <div style="border: 2px solid #ffc107; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>The code default for this property, which is used if this property is not set, is false.</p> </div>	true
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"> <code>uc.ldap.groups.single_parent_per_child</code> </div>	<div style="border: 2px solid #dc3545; padding: 10px; margin-bottom: 10px;"> <p><b>IMPORTANT</b></p> <p>This property should be set to true only if your Groups being synchronized from AD have at most one parent Group.</p> </div> <p>When synchronizing Groups, the default behavior in the Controller is to copy the members of a Sub Group into the Parent Group.</p> <p>When this property is set to true, the Controller assumes that each Group has, at most, a single Parent Group and will use the Parent field on the Group definition to maintain the hierarchy instead of copying members.</p>	false
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"> <code>uc.ldap.groups.update_members</code> </div>	<div style="border: 2px solid #dc3545; padding: 10px; margin-bottom: 10px;"> <p><b>IMPORTANT</b></p> <p>This property should be set to false only when synchronizing Groups from AD, and the number of values for the <b>member</b> attribute exceeds the <code>MaxValueRange</code> LDAP policy (and the <code>MaxValueRange</code> cannot be increased).</p> </div> <p>When synchronizing Groups, the default behavior in the Controller is to use the multi-valued <b>member</b> attribute to update the members for a Group; however, AD limits the number of values returned for an attribute, which can result in Group members being removed unexpectedly. This limit is determined by the <code>MaxValueRange</code> LDAP policy (typically 1,500).</p> <p>When this property is set to false, the Controller will not use the <b>member</b> attribute values to update members when synchronizing Groups from AD. Group membership will continue to be updated based on the <b>memberOf</b> attribute values when synchronizing Users from AD.</p>	true

Property Name	Description	Default
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"> <code>uc.ldap.users.synchronize_by_range</code> </div>	<div style="border: 2px solid #f00; padding: 5px; margin-bottom: 10px;"> <p><b>IMPORTANT</b></p> <p>This property should be set to false only if your <a href="#">LDAP server</a> supports paged results.</p> </div> <p>When synchronizing Users, the default behaviour in the Controller is to search based on ranges, using a filter like (&amp;(uid&gt;=a)(uid&lt;=b)). To use the &lt;= or &gt;= operators in a filter, an ordering rule must be defined for the attribute in the LDAP schema.</p> <p>OpenLDAP's schema does not define an ordering rule for the User Id Attribute (for example, <b>uid</b>), so searches using filters like the above do not return any results.</p> <p>When this property is set to false, the Controller will not search based on ranges when synchronizing Users.</p>	true
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"> <code>uc.ldap.users.synchronize_indirect</code> </div>	<div style="border: 2px solid #f00; padding: 5px; margin-bottom: 10px;"> <p><b>IMPORTANT</b></p> <p>This property should be set to true only if your <a href="#">LDAP server</a> does not support the User Membership Attribute (for example, <b>memberOf</b>).</p> </div> <p>Synchronizes LDAP users indirectly based on group membership. This only applies to groups that users are direct members of.</p> <p>When this property is set to true, the following will apply for the LDAP refresh (scheduled and <a href="#">server operations</a>):</p> <ul style="list-style-type: none"> <li>• Users will not be synchronized directly based on the User Filter and User Target OU List.</li> <li>• Groups will continue to be synchronized directly based on the Group Filter and Group Target OU List.</li> <li>• For each matching group, the Group Member Attribute (for example, <b>member</b>) will be used to synchronize users matching the User Filter and User Target OU List</li> </ul> <div style="border: 2px solid #ffc000; padding: 5px; margin-bottom: 10px;"> <p><b>Note</b></p> <p>The <code>uc.ldap.groups.update_members</code> property will be ignored when indirect user synchronization is enabled.</p> </div> <div style="border: 2px solid #ffc000; padding: 5px;"> <p><b>Note</b></p> <p>There is currently no support for nested groups if the User Membership Attribute is not supported by the <a href="#">LDAP server</a>.</p> </div>	false

Property Name	Description	Default
<code>uc.ldap.users.update_memberships_on_login</code>	<p><b>IMPORTANT</b></p> <p>This property should <b>not</b> be set to true if group membership for users is static, since there is extra overhead to process the groups, which may impact login performance.</p> <p>When this property is set to true, LDAP group memberships for existing LDAP users are updated upon successful login.</p> <p><b>Note</b></p> <p>When dynamically creating a new LDAP user at login, the user will be added only to groups that it is a direct member of. Likewise, when updating an existing LDAP user at login, the user will be removed from any groups that it is not a direct member of. Therefore, it is not recommended that you enable this property if a group hierarchy exists, since the user will be removed from any parent groups when logging in. (Group membership for the parent groups will be restored the next time the LDAP refresh runs; however, this can take up to 24 hours.)</p>	false
<b>For Single Sign-On:</b>		
<code>saml.log.level</code>	Configures the log level for the SAML framework: ALL, TRACE, DEBUG, INFO, WARN, or ERROR.	INFO
<code>saml.maxAuthenticationAge</code>	Specifies how long, in seconds, users can single sign-on after their initial authentication with the Identity Provider (based on value AuthInstance of the Authentication statement). Some Identity Providers allow users to stay authenticated for longer periods than this, so you might need to change the default value.	7200
<b>For TrustStore:</b>		
<code>uc.trustmanager.truststore</code>	Location of the keystore which holds certificates and keys.	properties/cacerts
<code>uc.trustmanager.truststore.type</code>	<p>The default TrustStore type. The following case-insensitive values are supported:</p> <ul style="list-style-type: none"> <li>• JKS</li> <li>• PKCS12</li> </ul>	KeyStore.getDefaultType() (PKCS12 as of Java 8)
<code>uc.trustmanager.truststore.provider</code>	The default TrustStore provider.	(none)
<code>uc.trustmanager.truststore.password</code>	Password (if required) for the keystore that will be replaced by <code>uc.trustmanager.truststore.password.encrypted</code> in the <code>uc.properties</code> file upon start-up.	changeit

Property Name	Description	Default
<code>uc.trustmanager.truststore.password.encrypted</code>	Encrypted version of <code>uc.trustmanager.truststore.password</code> that will replace <code>uc.trustmanager.truststore.password</code> in the <code>uc.properties</code> file upon start-up.	(none)
<p><b>For OpenTelemetry:</b></p> <p>To configure all of your OpenTelemetry settings in the <code>uc.properties</code>, but disable the feature until required, you can add the following property.</p> <pre>uc.otel.sdk.disabled=true</pre> <p>To enable the feature while the controller is running, you only need to set the <code>uc.otel.sdk.disabled</code> to <code>false</code> by updating the <code>uc.properties</code>, or by using the <a href="#">Server Operation &gt; Temporary Property Change</a> from the user interface.</p> <p>If you choose to update the <code>uc.properties</code>, the controller refreshes the property file at a 10 minute interval.</p> <p>You can increase this interval by adding the following property to the <code>uc.properties</code>.</p> <pre>uc.property.refresh_interval_in_seconds=60</pre> <p>The update from <a href="#">Server Operation &gt; Temporary Property Change</a> initiates the reconfiguration immediately.</p>		
<code>uc.otel.sdk.disabled</code>	If true, disable the OpenTelemetry SDK.	false
<code>uc.otel.traces.exporter</code>	If <code>none</code> , no traces exporter configured.	otlp
<code>uc.otel.metrics.exporter</code>	If <code>none</code> , no metrics exporter configured.	otlp
<code>uc.otel.exporter.otlp.service.name</code>	Specifies a custom logical name for the service. If left unspecified, the service name is <b>controller</b> .	controller
<code>uc.otel.exporter.otlp.protocol</code>	The transport protocol to use on OTLP trace, and metric requests. Options include <code>grpc</code> and <code>http/protobuf</code> .	grpc

Property Name	Description	Default
<code>uc.otel.exporter.otlp.traces.protocol</code>	The transport protocol to use on OTLP trace requests. Options include <code>grpc</code> and <code>http/protobuf</code> .	<code>grpc</code>
<code>uc.otel.exporter.otlp.metrics.protocol</code>	The transport protocol to use on OTLP metric requests. Options include <code>grpc</code> and <code>http/protobuf</code> .	<code>grpc</code>
<code>uc.otel.exporter.otlp.endpoint</code>	The OTLP traces, and metrics endpoint to connect to. Must be a URL with a scheme of either <code>http</code> or <code>https</code> based on the use of TLS. If protocol is <code>http/protobuf</code> the version and signal will be appended to the path (e.g. <code>v1/traces</code> , or <code>v1/metrics</code> ). For example, <code>http://localhost:4317</code> when protocol is <code>grpc</code> , and <code>http://localhost:4318/v1/{signal}</code> when protocol is <code>http/protobuf</code> .	(none)
<code>uc.otel.exporter.otlp.traces.endpoint</code>	The OTLP traces endpoint to connect to. Must be a URL with a scheme of either <code>http</code> or <code>https</code> based on the use of TLS. For example, <code>http://localhost:4317</code> when protocol is <code>grpc</code> , and <code>http://localhost:4318/v1/traces</code> when protocol is <code>http/protobuf</code> .	(none)
<code>uc.otel.exporter.otlp.metrics.endpoint</code>	The OTLP metrics endpoint to connect to. Must be a URL with a scheme of either <code>http</code> or <code>https</code> based on the use of TLS. For example, <code>http://localhost:4317</code> when protocol is <code>grpc</code> , and <code>http://localhost:4318/v1/metrics</code> when protocol is <code>http/protobuf</code> .	(none)
<code>uc.otel.exporter.otlp.certificate</code>	The path to the file containing trusted certificates to use when verifying an OTLP trace, or metric server's TLS credentials. The file should contain one or more X.509 certificates in PEM format.	By default, the host platform's trusted root certificates are used.
<code>uc.otel.exporter.otlp.traces.certificate</code>	The path to the file containing trusted certificates to use when verifying an OTLP trace server's TLS credentials. The file should contain one or more X.509 certificates in PEM format.	By default, the host platform's trusted root certificates are used.
<code>uc.otel.exporter.otlp.metrics.certificate</code>	The path to the file containing trusted certificates to use when verifying an OTLP metric server's TLS credentials. The file should contain one or more X.509 certificates in PEM format.	By default, the host platform's trusted root certificates are used.
<code>uc.otel.exporter.otlp.client.key</code>	The path to the file containing private client key to use when verifying an OTLP trace, or metric client's TLS credentials. The file should contain one private key PKCS8 PEM format.	By default, no client key is used.
<code>uc.otel.exporter.otlp.traces.client.key</code>	The path to the file containing private client key to use when verifying an OTLP trace client's TLS credentials. The file should contain one private key PKCS8 PEM format.	By default, no client key file is used.

Property Name	Description	Default
<code>uc.otel.exporter.otlp.metrics.client.key</code>	The path to the file containing private client key to use when verifying an OTLP metric client's TLS credentials. The file should contain one private key PKCS8 PEM format.	By default, no client key file is used.
<code>uc.otel.exporter.otlp.client.certificate</code>	The path to the file containing trusted certificates to use when verifying an OTLP trace, or metric client's TLS credentials. The file should contain one or more X.509 certificates in PEM format.	By default, no chain file is used.
<code>uc.otel.exporter.otlp.traces.client.certificate</code>	The path to the file containing trusted certificates to use when verifying an OTLP trace server's TLS credentials. The file should contain one or more X.509 certificates in PEM format.	By default, no chain file is used.
<code>uc.otel.exporter.otlp.metrics.client.certificate</code>	The path to the file containing trusted certificates to use when verifying an OTLP metric server's TLS credentials. The file should contain one or more X.509 certificates in PEM format.	By default, no chain file is used.
<code>uc.otel.exporter.otlp.headers</code>	Key-value pairs separated by commas to pass as request headers on OTLP trace, or metric requests.	(none)
<code>uc.otel.exporter.otlp.traces.headers</code>	Key-value pairs separated by commas to pass as request headers on OTLP trace requests.	(none)
<code>uc.otel.exporter.otlp.metrics.headers</code>	Key-value pairs separated by commas to pass as request headers on OTLP metrics requests.	(none)
<code>uc.otel.exporter.otlp.compression</code>	The compression type to use on OTLP trace, and metric requests. Options include <code>gzip</code> .	By default, no compression will be used.
<code>uc.otel.exporter.otlp.traces.compression</code>	The compression type to use on OTLP trace requests. Options include <code>gzip</code> .	By default, no compression will be used.
<code>uc.otel.exporter.otlp.metrics.compression</code>	The compression type to use on OTLP metric requests. Options include <code>gzip</code> .	By default, no compression will be used.

Property Name	Description	Default
<code>uc.otel.exporter.otlp.timeout</code>	The maximum waiting time, in milliseconds, allowed to send each OTLP trace, and metric batch.	10000
<code>uc.otel.exporter.otlp.traces.timeout</code>	The maximum waiting time, in milliseconds, allowed to send each OTLP trace batch.	10000
<code>uc.otel.exporter.otlp.metrics.timeout</code>	The maximum waiting time, in milliseconds, allowed to send each OTLP metric batch.	10000
<code>uc.otel.exporter.otlp.metrics.temporality.preference</code>	The preferred output aggregation temporality. Options include DELTA, LOWMEMORY, and CUMULATIVE. If CUMULATIVE, all instruments will have cumulative temporality. If DELTA, counter (sync and async) and histograms will be delta, up down counters (sync and async) will be cumulative. If LOWMEMORY, sync counter and histograms will be delta, async counter and up down counters (sync and async) will be cumulative.	CUMULATIVE
<code>uc.otel.exporter.otlp.metrics.default.histogram.aggregation</code>	The preferred default histogram aggregation. Options are: <ul style="list-style-type: none"> <li>• BASE2_EXPONENTIAL_BUCKET_HISTOGRAM</li> <li>• EXPLICIT_BUCKET_HISTOGRAM.</li> </ul>	EXPLICIT_BUCKET_HISTOGRAM
<b>For Prometheus Metrics:</b>		
<code>uc.prometheus.metrics.uc_history_total.optional_labels</code>	Specifies optional labels for <code>uc_history_total</code> metric. The property value is specified as comma-delimited list of optional labels. Options are: <ul style="list-style-type: none"> <li>• agent_id</li> <li>• task_name</li> <li>• security_business_services</li> <li>• task_instance_exit_code</li> </ul> For example: <code>uc.prometheus.metrics.uc_history_total.optional_labels=agent_id,task_name</code>	(none)
<code>uc.prometheus.metrics.uc_task_instance_duration_seconds.optional_labels</code>	Specifies optional labels for <code>uc_task_instance_duration_seconds</code> metric. The property value is specified as comma-delimited list of optional labels. Options are: <ul style="list-style-type: none"> <li>• agent_id</li> <li>• task_name</li> <li>• security_business_services</li> </ul> For example: <code>uc.prometheus.metrics.uc_task_instance_duration_seconds.optional_labels=agent_id,task_name</code>	(none)

Property Name	Description	Default
<pre>uc.prometheus.metrics.uc_task_instance_early_finish_total.optional_labels</pre>	<p>Specifies optional labels for <code>uc_task_instance_early_finish_total</code> metric. The property value is specified as comma-delimited list of optional labels. Options are:</p> <ul style="list-style-type: none"> <li>agent_id</li> <li>task_name</li> <li>security_business_services</li> </ul> <p>For example:</p> <pre>uc.prometheus.metrics.uc_task_instance_early_finish_total.optional_labels =agent_id,task_name</pre>	(none)
<pre>uc.prometheus.metrics.uc_task_instance_late_finish_total.optional_labels</pre>	<p>Specifies optional labels for <code>uc_task_instance_late_finish_total</code> metric. The property value is specified as comma-delimited list of optional labels. Options are:</p> <ul style="list-style-type: none"> <li>agent_id</li> <li>task_name</li> <li>security_business_services</li> </ul> <p>For example:</p> <pre>uc.prometheus.metrics.uc_task_instance_late_finish_total.optional_labels =agent_id,task_name</pre>	(none)
<pre>uc.prometheus.metrics.uc_task_instance_late_start_total.optional_labels</pre>	<p>Specifies optional labels for <code>uc_task_instance_late_start_total</code> metric. The property value is specified as comma-delimited list of optional labels. Options are:</p> <ul style="list-style-type: none"> <li>agent_id</li> <li>task_name</li> <li>security_business_services</li> </ul> <p>For example:</p> <pre>uc.prometheus.metrics.uc_task_instance_late_start_total.optional_labels =agent_id,task_name</pre>	(none)
<pre>uc.prometheus.metrics.uc_task_instance_launch_total.optional_labels</pre>	<p>Specifies optional labels for <code>metrics.uc_task_instance_launch_total</code> metric. The property value is specified as comma-delimited list of optional labels. Options are:</p> <ul style="list-style-type: none"> <li>agent_id</li> <li>task_name</li> <li>security_business_services</li> </ul> <p>For example:</p> <pre>uc.prometheus.metrics.uc_task_instance_launch_total.optional_labels =agent_id,task_name</pre>	(none)
<pre>uc.prometheus.metrics.uc_universal_event_total.optional_labels</pre>	<p>Specifies optional labels for <code>uc_universal_event</code> metric. The property value is specified as comma-delimited list of optional labels. Options are:</p> <ul style="list-style-type: none"> <li>agent_id</li> <li>task_name</li> <li>security_business_services</li> </ul> <p>For example:</p> <pre>uc.prometheus.metrics.uc_universal_event_total.optional_labels =agent_id,task_name</pre>	(none)

Property Name	Description	Default
<code>uc.prometheus.metrics.uc_task_instance_duration_seconds.buckets</code>	Specifies the buckets to use for the <code>uc_task_instance_duration_seconds</code> histogram. The property value is specified as comma-delimited list of double or integer values.  For example:  <code>uc.prometheus.metrics.uc_task_instance_duration_seconds.buckets=</code> <code>1,2.5,5,10,15,30,45,60,150,300,600,900,1800,2700,3600</code>	(none)
<b>Other Properties:</b>		
<code>jdk.xml.entityExpansionLimit</code>	Limits the number of XML entity expansions.  Valid values are any positive integer. A value equal to 0 indicates no limit.  If <code>jdk.xml.entityExpansionLimit</code> is not specified in <b>uc.properties</b> (or on start-up with <code>-Djdk.xml.entityExpansionLimit=&lt;limit&gt;</code> ), Universal Controller will initialize it to a default value of 1. <ul style="list-style-type: none"> <li>• If <code>jdk.xml.entityExpansionLimit</code> is specified on start-up with <code>-Djdk.xml.entityExpansionLimit=&lt;limit&gt;</code>, this takes precedence over the Universal Controller default value of 1.</li> <li>• If <code>jdk.xml.entityExpansionLimit</code> is specified in <b>uc.properties</b>, this takes precedence over specifying it on start-up with <code>-Djdk.xml.entityExpansionLimit=&lt;limit&gt;</code>.</li> </ul>	1
<code>uc.date.formats</code>	Accepted input date formats for <a href="#">Date Functions</a> and <a href="#">Stored Procedure parameters</a> . For example: <code>uc.date.formats=yyyy/MM/dd;dd/MM/yyyy</code> . Formats can vary, but years must be defined with four digits (yyyy). Formats are used on a "first match" basis.	

Property Name	Description	Default
<code>uc.email.attachments.local.path</code>	<p>Directory location from where files can be attached for a specific Cluster Node / Server. You must specify a location in this property in order for the Attach Local File field to display in the Email Task and Email Notifications Details.</p> <p>The <b>uc.properties</b> file is refreshed every 5 minutes to accommodate changes to this property without requiring a restart. Every 5 minutes, <b>uc.properties</b> is read, and if this property value has changed, that new value then will be used within the Controller.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>This property is local to the Cluster Node and must be specified on each Node based upon the path for that Node. Each Node can have a different path, but they should point to the same shared physical location in order to achieve the expected behavior. Best practices would be to use the same path in each Node.</p> </div>	
<code>uc.action.email_notification.attach_output_subscription.timeout_in_seconds</code>	Number of seconds for <a href="#">Email Notification</a> output timeout.	180
<code>uc.keymanager.algorithm</code>	Java key manager algorithm. <ul style="list-style-type: none"> <li>• For IBM AIX, the value must be <code>IbmX509</code>.</li> <li>• For all other platforms, use the default value.</li> </ul> If no value is specified, the configured JVM default will be used.	
<code>uc.keymanager.client.alias</code>	If multiple certificates reside in the keystore that could match the OMS server's certificate request, specifying an alias ensures that the intended client certificate is presented to the OMS server.	
<code>uc.keymanager.keystore</code>	Location of the keystore which holds certificates and keys.	
<code>uc.keymanager.keystore.password</code>	Password (if required) for the keystore that will be replaced by <b>uc.keymanager.keystore.password.encrypted</b> in the <b>uc.properties</b> file upon start-up.	
<code>uc.keymanager.provider</code>	Java key manager provider. <ul style="list-style-type: none"> <li>• For IBM AIX, the value must be <code>IBMJSSE2</code>.</li> <li>• For all other platforms, use the default value.</li> </ul> If no value is specified, the configured JVM default will be used.	

Property Name	Description	Default
<pre>uc.mbean.catalina.manager.name</pre>	<p>The Controller uses the Catalina:type=Manager MBean for the <a href="#">User Sessions</a> feature.</p> <p>To determine the Manager MBean object name, the Controller dynamically determines the context. For example:</p> <pre>Catalina:type=Manager,context=/uc,host=localhost</pre> <p>If the following error appears in the <a href="#">Console</a> while you are using the User Sessions feature, you may need to configure this property manually:</p> <pre>Universal Controller not configured for user session operations.</pre> <p>In the uc.log, you would see the following:</p> <pre>javax.management.InstanceNotFoundException: Catalina:type=Manager,context=/uc,host=localhost</pre>	

Property Name	Description	Default
<p><code>uc.oms.service_timeout</code></p>	<p>Sets the OMS service timeout value specifying the number of seconds of inactivity before a timeout exception will be thrown. For example, you will see the following in the uc.log:</p> <p><b>Default (180 seconds)</b></p> <pre> 2021-08-04-21:12:25:542 -0400 INFO [UC.OMS.Monitor.0] Created: OMSServerConnection [userName=null, clientId=ops.controller.f9a86ee2bd5e 4928b3173b186e0feb3c, clientInstance=15296bc7-e994-49eb- a6cf-0ecbf72d5f2f, transportAddresses=OMSTransportAddre ss [[localhost/127.0.0.1:7878]], nft=true, socketTimeout=30, serviceTimeout=180, authenticateServer=false, serverAddress=null, nextSessionId=0, isClosing=false, connectionInstance=1]                 </pre> <p><b>uc.oms.service_timeout=300</b></p> <pre> OMSServerConnection [userName=null, clientId=ops.controller.f9a86ee2bd5e 4928b3173b186e0feb3c, clientInstance=96e45eb5- c513-489a-8746-6223e962e901, transportAddresses=OMSTransportAddre ss [[localhost/127.0.0.1:7878]], nft=true, socketTimeout=30, serviceTimeout=300, authenticateServer=false, serverAddress=null, nextSessionId=0, isClosing=false, connectionInstance=1]                 </pre>	<p>180</p>

Property Name	Description	Default
<code>uc.overdue.timer.startup.threshold</code>	Maximum number of days after which an <b>overdue</b> trigger is considered "stale/expired."	2
<code>uc.servlet.port</code>	Port number used by Tomcat.	8080
<code>uc.task.sap.rpc.timeout</code>	Sets the timeout value in seconds for the SAP RPC calls.	120
<code>uc.task.zos.view_edit_jcl.timeout</code>	Sets the JCL service timeout value specifying the number of seconds to wait for the agent response before a timeout exception will be thrown.	60
<code>uc.trustmanager.algorithm</code>	Java trust manager algorithm. <ul style="list-style-type: none"> <li>For IBM AIX, the value must be <code>IbmX509</code>.</li> <li>For all other platforms, use the default value.</li> </ul>	SunX509
<code>uc.trustmanager.provider</code>	Java trust manager provider. <ul style="list-style-type: none"> <li>For IBM AIX, the value must be <code>IBMJSSE2</code>.</li> <li>For all other platforms, use the default value.</li> </ul>	SunJSSE
<code>uc.trustmanager.ssl.protocols</code>	Comma-separated list of SSL/TLS protocols that can be used for Controller/OMS communications. <ul style="list-style-type: none"> <li>If the property does not contain a protocol list, a default SSL/TLS context will be referenced for building the SSL/TLS socket used for Controller/OMS communications.</li> <li>If the property is used, only those protocols will be enabled for the Controller/OMS session.</li> <li>If the property is not used, only the protocols specified in currently configured default SSL/TLS Context's default SSL/TLS protocol list will be enabled for the Controller/OMS session.</li> </ul>	
<code>uc.ui.session_timeout</code>	Default browser session timeout, in minutes. To use the Tomcat session configuration (default 30 minutes), set this property to 0.	30
<code>uc.web_service.allow_unknown_properties</code>	Specifies (true or false) whether web service APIs will fail if the request payload contains unknown properties.	false
<code>uc.web_service.httpClient.socket.keep_alive</code>	Specifies (true or false) whether TCP socket keep-alive option is enabled for HTTP(S)/REST Web Service Tasks.	false

## 16.2.1 Secrets Provider Properties

The `uc.db.secrets_provider` property specifies which secrets provider the controller will use for the database password.

The controller will then load all the properties associated with the specified provider.

The properties that will be loaded by the controller for each provider are listed below.

### 16.2.1.1 AWS Secrets Manager

Property Name	Required	Description
<code>uc.db.secrets_provider.aws_secrets_manager.access_key_id</code>	true	The AWS access key, used to identify the user interacting with AWS.
<code>uc.db.secrets_provider.aws_secrets_manager.secret_access_key</code>	true	The AWS secret access key, used to authenticate the user interacting with AWS.
<code>uc.db.secrets_provider.aws_secrets_manager.region</code>	true	The region name (e.g., us-east-1).
<code>uc.db.secrets_provider.aws_secrets_manager.secret_id</code>	true	The ARN or name of the secret to retrieve.
<code>uc.db.secrets_provider.aws_secrets_manager.secret_password_key</code>	false	If this secret was created by using the console, then Secrets Manager stores the information as a JSON structure of key/value pairs. Specifies the key for the password in the JSON structure. <ul style="list-style-type: none"> <li>If left unspecified, the password will evaluate to the entire secret value.</li> </ul>
<code>uc.db.secrets_provider.aws_secrets_manager.secret_passphrase_key</code>	false	Specifies the key for the passphrase in the JSON structure. <ul style="list-style-type: none"> <li>If left unspecified, the passphrase will be undefined.</li> </ul>
<code>uc.db.secrets_provider.aws_secrets_manager.secret_token_key</code>	false	Specifies the key for the token in the JSON structure. <ul style="list-style-type: none"> <li>If left unspecified, the token will be undefined.</li> </ul>
<code>uc.db.secrets_provider.aws_secrets_manager.cache_ttl</code>	false	The TTL (Time To Live), in seconds, for the cached secret before a new request to the provider is made. (default 3600 seconds / 1 hour)

### 16.2.1.2 Azure Key Vault

Property Name	Required	Description
<code>uc.db.secrets_provider.azure_key_vault.key_vault_name</code>	true	The name of the Key Vault used to build the vault URL to send HTTP requests to. <ul style="list-style-type: none"> <li><code>https://&lt;your-key-vault-name&gt;.vault.azure.net</code></li> </ul>

Property Name	Required	Description
<code>uc.db.secrets_provider.azure_key_vault.secret_name</code>	true	The name of the secret.
<code>uc.db.secrets_provider.azure_key_vault.client_id</code>	true	The client (application) ID.
<code>uc.db.secrets_provider.azure_key_vault.tenant_id</code>	true	The Azure Active Directory tenant (directory) Id.
<code>uc.db.secrets_provider.azure_key_vault.client_secret</code>		The client secret used to authenticate. <ul style="list-style-type: none"> <li>Only one of CLIENT_SECRET, CLIENT_ASSERTION, PEM_CERTIFICATE, or PFX_CERTIFICATE can be specified.</li> </ul>
<code>uc.db.secrets_provider.azure_key_vault.client_assertion</code>		The client assertion used to authenticate. <ul style="list-style-type: none"> <li>Only one of CLIENT_SECRET, CLIENT_ASSERTION, PEM_CERTIFICATE, or PFX_CERTIFICATE can be specified.</li> </ul>
<code>uc.db.secrets_provider.azure_key_vault.pem_certificate</code>		The path of the PEM certificate used for authenticating. <ul style="list-style-type: none"> <li>Only one of CLIENT_SECRET, CLIENT_ASSERTION, PEM_CERTIFICATE, or PFX_CERTIFICATE can be specified.</li> </ul>
<code>uc.db.secrets_provider.azure_key_vault.pfx_certificate</code>		The path of the PFX certificate used for authenticating. <ul style="list-style-type: none"> <li>Only one of CLIENT_SECRET, CLIENT_ASSERTION, PEM_CERTIFICATE, or PFX_CERTIFICATE can be specified.</li> </ul>
<code>uc.db.secrets_provider.azure_key_vault.pfx_certificate_password</code>		The password for the PFX certificate. <ul style="list-style-type: none"> <li>Required if the PFX_CERTIFICATE is specified.</li> </ul>
<code>uc.db.secrets_provider.azure_key_vault.cache_ttl</code>	false	The TTL (Time To Live), in seconds, for the cached secret before a new request to the provider is made. (default 28800 seconds / 8 hours)

### 16.2.1.3 CyberArk Credential Provider

Property Name	Required	Description
<code>uc.db.secrets_provider.cyberark_credential_provider.application_id</code>	true	The unique ID of the application issuing the password request.
<code>uc.db.secrets_provider.cyberark_credential_provider.safe</code>	true	The name of the Safe where the password is stored.
<code>uc.db.secrets_provider.cyberark_credential_provider.folder</code>	true	The name of the folder where the password is stored.

Property Name	Required	Description
<code>uc.db.secrets_provider.cyberark_credential_provider.object</code>	true	The name of the password object to retrieve.
<code>uc.db.secrets_provider.cyberark_credential_provider.reason</code>	false	The reason for retrieving the password.
<code>uc.db.secrets_provider.cyberark_credential_provider.cache_ttl</code>	false	The TTL (Time To Live), in seconds, for the cached secret before a new request to the provider is made. (default 5 seconds)

### 16.2.1.4 CyberArk Central Credential Provider

Property Name	Required	Description
<code>uc.db.secrets_provider.cyberark_central_credential_provider.host</code>	true	The hostname of the Central Credential Provider.
<code>uc.db.secrets_provider.cyberark_central_credential_provider.port</code>	true	The port of the Central Credential Provider.
<code>uc.db.secrets_provider.cyberark_central_credential_provider.application_id</code>	true	The unique ID of the application issuing the password request.
<code>uc.db.secrets_provider.cyberark_central_credential_provider.safe</code>	true	The name of the Safe where the password is stored.
<code>uc.db.secrets_provider.cyberark_central_credential_provider.folder</code>	true	The name of the folder where the password is stored.
<code>uc.db.secrets_provider.cyberark_central_credential_provider.object</code>	true	The name of the password object to retrieve.
<code>uc.db.secrets_provider.cyberark_central_credential_provider.keystore</code>	true	The path of the keystore containing the client certificate used for authenticating.
<code>uc.db.secrets_provider.cyberark_central_credential_provider.keystore_password</code>	false	The password used to unlock the keystore.
<code>uc.db.secrets_provider.cyberark_central_credential_provider.keystore_type</code>	false	The type of keystore. (default PKCS12) <ul style="list-style-type: none"> <li>• JKS                             <ul style="list-style-type: none"> <li>• The proprietary keystore implementation provided by the SUN provider.</li> </ul> </li> <li>• PKCS12                             <ul style="list-style-type: none"> <li>• The transfer syntax for personal identity information as defined in PKCS #12.</li> </ul> </li> </ul>

Property Name	Required	Description
<code>uc.db.secrets_provider.cyberark_central_credential_provider.keystore_alias</code>	false	The name of a specific entry in the keystore to use.
<code>uc.db.secrets_provider.cyberark_central_credential_provider.cache_ttl</code>	false	The TTL (Time To Live), in seconds, for the cached secret before a new request to the provider is made. (default 5 seconds)

### 16.2.1.5 Sample uc.properties File

```
# DB
uc.db.rdbms=mysql
uc.db.url=jdbc:mysql://localhost/
# MYSQL
# uc.db.mysql.character_encoding=UTF-8
# uc.db.rdbms=mysql
# uc.db.url=jdbc:mysql://localhost/
# MS SQLSERVER
# uc.db.rdbms=sqlserver
# uc.db.url=jdbc:sqlserver://localhost:1433;DatabaseName=uc
# ORACLE
# uc.db.rdbms=oracle
# uc.db.url=jdbc:oracle:thin:@//localhost:1521/@oracle.db.name@
#
# COMMON
#
# trust manager algorithm & provider
# uc.trustmanager.algorithm=SunX509
# uc.trustmanager.provider=SunJSSE
# uc.trustmanager.ssl.protocols=TLSv1,TLSv1.1,TLSv1.2
#
uc.db.user=root
uc.db.password=pswd
uc.db.name=uc
uc.servlet.port=8080
uc.ui.session_timeout=30
```

## 16.3 Universal Controller System Properties

Properties for your Universal Controller system are set (in the Controller database) during Controller installation. These properties let you define Controller system information and performance.

Universal Controller system properties do not reside in a properties file; they are available only via the user interface.

Although you can reset these properties any time after the Controller is in operation without having to stop and restart the Controller, you should click the Reload current page icon in your browser taskbar after resetting a property.

**Note**

You must be assigned the [ops\\_admin](#) role in order to reset these properties.

**Step 1**

From the Available Services, select **Administration > Properties**. The Properties list displays.

215 Properties	
Name ^	Value
Administrator Email Address	
Agent Address Information Restricted	true
Agent Cache Retention Period In Days	6
Agent Cluster Network Alias Cache Retention In Minutes	30
Agent Cluster Network Alias Retry Interval In Minutes	5
Agent Cluster Network Alias Query Port	7887
Agent Credentials Required	false
Agent Credentials Required On Registration	
Agent Heartbeat Grace Period In Seconds	60
Agent Heartbeat Interval In Seconds	120
Agent Notification Disabled If Suspended	false
Agent Prefix	AGNT
Allow In Doubt Re-run	true
Audit Owner Read Permitted	true
Auto Fit Plain Large Text Fields	true
Automatically Create Versions	true
Automatically Skip Conflicting Multi-Origin Paths	false
Banner Background Color	transparent
Banner Logo	
Banner Logo URL	
Broadcast On Hold If Cluster Suspended	true
Broadcast On Hold If Cluster Unresolved	true
Bulk Export Activity Permitted	true
Bundle Exclude On Existence Picker Default	
Bundleless Promotion With Execute Permission Permitted	true
Business Service Visibility Restricted	false
Calendar Preview Future Period In Years	3
Calendar Preview Past Period In Months	12
CLI/Web Service Result Limit	1000
Client Export Fetch Limit	2000
Compress Bundle Promotion Payload	true
Confirm Enable/Disable Trigger Command	Yes
Confirm Exit	true
Confirm Update For Tasks In Workflows	false
Continue Monitoring Completed Workflows In Workflow Monitor	true
Copy Notes To Task Instances For Reporting	false
Create Version On Related List Change	false
Critical Path Calculations Permitted	true
Critical Path Color	#FF0000
Critical Path Dynamic Calculation Threshold In Seconds	1
Critical Path Monitor Polling Interval In Seconds	300
Critical Path Monitor Polling Threshold In Seconds	60
Critical Path Projected Late Action Maximum	5
Critical Path Projected Late Threshold In Minutes	5
Custom Day Global Permitted	true
Custom Day Local Indicator Enabled	true
Custom Day Strict Mode	false
Data Backup/Purge Export Path	
Deployment Wait For Running Instances Timeout In Seconds	600
Disable Tab Indicators	false
Email Body Default Begin Marker	--BEGIN--
Email Body Default End Marker	--END--
Email Credentials Permitted	true
Email Monitor Polling Interval In Seconds	120
Email Notification Audit	Success/Failed
Enable Force Rerun For z/OS Job Steps	true
Exclude Holidays For Business Days	false
Expand Lists Automatically	No
Export Agent References	true
Export Path	
Expose Resolved Script	true
Expose UDM Script	true
File Transfer Task Exclude Protocols	
Flatten Reference List Fields In Chart Reports	true

<b>Step 2</b>	If you want to change the value of a property, click a its <b>Value</b> field and select/enter a new value.
<b>Step 3</b>	<p>To filter the list of displayed properties, enter appropriate characters (not case-sensitive) in the empty fields above the Name and/or Value columns.</p> <p>For example, to display only properties elated to promotion, enter <b>promotion</b> (or <b>PROMOTION</b>, <b>promo</b>, etc.) in the empty field above the Name column.</p>

The following table describes the Universal Controller system properties:

Name (Property Name)	Description	Default
Administrator Email Address (uc.admin.email_addr)	System administrator email address(es) specified as the recipient(s) for <a href="#">System Notifications</a> . Addresses for multiple administrators should be specified in a comma-separated list.	(none)
Agent Address Information Restricted (uc.agent.address_info_restricted)	Specification (true or false) for whether or not to hide the IP address of an <a href="#">Agent</a> from non-Administrator ( <a href="#">ops_admin</a> ) users.  If the property is set to true and the user is a non-Administrator, the IP Address field of Agents will display ***** instead of the actual value for that user.	true
Agent Cache Retention Period in Days (uc.agent.cache.retention)	Number of days that cache files (stdout, stderr) are retained by the system.	7
Agent Cluster Network Alias Cache Retention In Minutes (uc.agent_cluster.network_alias.cache_retention_in_minutes)	Amount of time (in minutes) that a resolved Network Alias will be used before attempting to resolve it again.	30
Agent Cluster Network Alias Retry Interval In Minutes (uc.agent_cluster.network_alias.retry_interval_in_minutes)	Amount of time (in minutes) before automatically retrying the Network Alias resolution upon failure.	5
Agent Cluster Network Alias Uquery Port (uc.agent_cluster.network_alias.uquery_port)	Default port for an Agent Cluster with a Distribution method of Network Alias if no Agent Port is specified.	7887
Agent Credentials Required (uc.agent.credentials.required)	Specification (true or false) for whether or not Credentials are required for <a href="#">agent-based tasks</a> and <a href="#">Application Resources</a> .	false
Agent Credentials Required On Registration (uc.agent.credentials.required.registration)	Specification (Windows, Linux/Unix, z/OS) for whether the agent has to use the credentials or not.	(none)
Agent Heartbeat Grace Period in Seconds (uc.agent.heartbeat.grace_period_in_seconds)	Grace period in seconds (minimum 30, maximum 600) that the Controller will allow for a delayed heartbeat message.	60
Agent Heartbeat Interval in Seconds (uc.agent.heartbeat.interval.in.seconds)	Number of seconds between each heartbeat message sent by the agent to the Controller.	120
Agent Notification Disabled If Suspended (uc.agent.notification.disable_if_suspended)	Specification (true or false) for whether or not Agent notifications will not be processed (true) when a suspended Agent goes active/offline.	false
Agent Prefix (uc.agent.prefix)	Prefix appended to the Queue name for newly registered agents. A 4-digit number is appended to this prefix.	AGNT
Allow In Doubt Re-run (uc.task_instance.rerun.allow_in_doubt)	Specification (true or false) for whether or not the Controller will allow the re-run of a task instance if it is in the <a href="#">In Doubt</a> status.	true

Name (Property Name)	Description	Default
Audit Owner Read Permitted (uc.audit.owner.read.permitted)	Specifies if users without the ops_admin role or the ops_audit_view role can view their own audits, specifically, any audit indicating it was <b>Created By</b> their <b>User Id (Username)</b> .	true
Autofit Plain Large Text Fields (uc.universal_template.text_field.large.plain.auto_fit)	Specification (true or false) for whether or not the Controller will auto-fit <b>Universal Task</b> Large Text Fields when Text Type is Plain.	true
Automatically Create Versions (uc.version.automatically)	Specification (true or false) for whether or not the Controller will retain copies of previous versions. Affects system behavior when you make updates to records in your Controller database, such as changing a task definition.	true
Automatically Skip Conflicting Multi-Origin Paths (uc.workflow.skip_conflicting_multi_origin_paths)	Specification (true or false) for whether or not the Controller will automatically skip a task (within a workflow) that is connected to multiple predecessor tasks, where one or more of the predecessor tasks would cause the task to be run and one or more would cause the task to be skipped.	false
Banner Background Color (uc.banner.background_color)	Hexadecimal color code for the color of the Universal Controller user interface page banner. Valid values are #[0-9, a-f, A-F] (six characters) or transparent.	transparent For transparent, color will be based on <a href="#">Theme</a> .
Banner Logo (uc.banner.logo)	<p>Name of the <a href="#">Banner Logo</a> file to use in the Universal Controller user interface page banner (next to the Stonebranch logo). Enter the name of the logo file, excluding the path, from directory <code>./tomcat/uc_images/</code>. Valid logo files end in extension <code>.png</code>, <code>.jpg</code>, or <code>.gif</code>.</p> <div data-bbox="504 1070 1291 1279" style="border: 1px solid yellow; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>The banner logo is allocated a maximum width of 298px and a maximum height of 32px. The image will be scaled, preserving its ratio, to fit within its designated area.</p> </div>	(none)
Banner Logo URL (uc.banner.logo_url)	URL of a web resource that you want the <a href="#">Banner Logo</a> to link to. The URL must begin with <code>http://</code> , <code>https://</code> , or <code>ftp://</code> and contain no spaces. (Banner Logo URL is not a valid URL.)	(none)
Broadcast On Hold If Cluster Suspended (uc.cluster_broadcast.hold_on_suspended)	Specification (true or false) for whether or not cluster broadcast tasks will be run if the agent cluster selected for the broadcast has been <a href="#">suspended</a> .	true
Broadcast On Hold If Cluster Unresolved (uc.cluster_broadcast.hold_on_unresolved)	Specification (true or false), for a task instance defined within a workflow, if a broadcast cluster is specified, and Universal Controller is unable to find the broadcast cluster by id, or unable to resolve the broadcast cluster variable, or the Execution User cannot read the cluster due to security constraints, that the task instance should be Held, with an appropriate Hold Reason, rather than the instance becoming Undeliverable only when eligible to run.	true
Bulk Export Activity Permitted (uc.bulk_export.activity.permitted)	Specification (true or false) for whether or not to permit the <a href="#">Bulk Export Activity</a> server operation to be run.	false
Bundle Exclude On Existence Picker Default (uc.bundle.exclude_on_existence.picker.default)	<p>Default selection for the <a href="#">Exclude on Existence</a> field in both the <a href="#">Bundle Details</a> for a new Bundle and the <a href="#">Promote dialog</a> when promoting one or more individual records, which identifies record types in the promotion payload that will not be updated if they exist on the target server.</p> <p>Use the Shift and/or Ctrl keys to select multiple record types.</p>	(none)

Name (Property Name)	Description	Default
Bundleless Promotion With Execute Permission Permitted (uc.promotion.bundleless.execute_permission.permitted)	Specifies whether or not a bundleless promotion should be limited to users with the <a href="#">ops_promotion_admin</a> role, or if users with promotion target Execute permission should be permitted to perform a bundleless promotion.	false
Business Service Visibility Restricted (uc.bsvc.visibility_restricted)	<p>Specification (true or false) for whether or not drop-down lists for selecting a Business Service, such as in the Member of Business Services field, should restrict the visibility of Business Services available for selection based on a user's assigned (or inherited) <a href="#">Permissions</a> and <a href="#">Roles</a>.</p> <p>If a user has any Permission, directly assigned or inherited, with its <a href="#">Member of Any Business Service or Unassigned</a> checkbox selected, the user will have no Business Service visibility restrictions.</p> <p>For any Permission that the user has, directly assigned or inherited, with an explicit Business Service specified for <a href="#">Member of Business Services</a>, visibility for that specific Business Service will not be restricted.</p> <p>The following Roles, directly assigned or inherited, provide a user with unrestricted Business Service visibility.</p> <ul style="list-style-type: none"> <li>• ops_admin</li> <li>• ops_agent_cluster_admin</li> <li>• ops_bundle_admin</li> <li>• ops_dba</li> <li>• ops_email_admin</li> <li>• ops_oms_admin</li> <li>• ops_peoplesoft_admin</li> <li>• ops_promotion_admin</li> <li>• ops_sap_admin</li> <li>• ops_service</li> <li>• ops_snmp_admin</li> <li>• ops_user_admin</li> </ul> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>In cases where the user can Read a record that is a member of one or more Business Services, and visibility for one or more of those Business Services is restricted for that user, the user will be able to see the display name of those Business Services in the Member of Business Services field; however, the drop-down will not contain those Business Services for selection.</p> <p>Any attempt to modify the selection of the Member of Business Services field will result in the removal of restricted Business Services from the selection.</p> </div>	false
Calendar Preview Past Period In Months (uc.calendar.preview.past.months)	Number of months (going backwards) to show all Custom Days defined for a calendar in a <a href="#">Calendar Preview</a> .	3
Calendar Preview Future Period In Years (uc.calendar.preview.years)	Number of years (starting from the end of the current year) to show all Custom Days defined for a calendar in a <a href="#">Calendar Preview</a> .	2

Name (Property Name)	Description	Default
CLI/Web Service Result Limit (uc.cli.result_limit)	Maximum number of records that can be retrieved (or matched) for the following: <ul style="list-style-type: none"> <li>• CLI List APIs excluding List Predecessors / Successors of a Task Instance in a Workflow CLI</li> <li>• CLI APIs for limiting matches:                             <ul style="list-style-type: none"> <li>• Launch a Task</li> <li>• Export Trigger</li> <li>• Disable a Trigger</li> <li>• Enable a Trigger</li> <li>• Launch Trigger Tasks Now</li> </ul> </li> <li>• Web Service List APIs:                             <ul style="list-style-type: none"> <li>• List Task Instances</li> <li>• List Task Instances - Advanced</li> <li>• List Tasks</li> <li>• List Tasks - Advanced</li> <li>• List Triggers</li> <li>• List Triggers - Advanced</li> <li>• List Virtual Resources</li> <li>• List Virtual Resources - Advanced</li> <li>• List Variables</li> <li>• List Variables - Advanced</li> </ul> </li> </ul>	1000
Client Export Fetch Limit (uc.export.client.fetch_limit)	Number of records to pre-fetch before performing an <a href="#">export to CSV, PDF, XLS (Excel), or XLSX</a> . Before performing an export, the client will attempt to pre-fetch all list grid data. If after the pre-fetch, the list grid does not contain all matching rows, a warning displays, before continuing with the export, indicating that the export doesn't contain everything.	1000
Compress Bundle Promotion Payload (uc.bundle.payload_compression)	Specification (true or false) for whether or not the Controller will compress record bundles during a promotion.	false
Confirm Enable/Disable Trigger Command (uc.user.confirm.enable.disable.trigger.default)	Specification (yes or no) for whether or not a confirmation pop-up displays if a user selects to enable or disable a trigger.	yes
Confirm Exit (uc.browser.confirm_exit)	Specification (true or false) for whether or not a <a href="#">confirmation pop-up</a> displays if a user navigates away from the Universal Controller user interface (or closes the browser without logging out).	true
Confirm Update For Tasks In Workflows (uc.task.confirm.workflow_update)	Specification (true or false) for whether or not a user, when <a href="#">updating a task</a> , is prompted with a Confirmation dialog listing all Workflows containing that task, since those Workflows could be impacted by the task update.	false
Continue Monitoring Completed Workflows in Workflow Monitor (uc.workflow_monitor.monitor_completed)	Specification (true or false) for whether or not the Controller will continue monitoring completed Workflows in the Workflow Monitor.	false
Create Version On Related List Change (uc.version.on.related.list.change)	Specification (true or false) for whether or not a record version will be created if the user changes a record associated with the current record. For example, if true, the Controller will create a version of the task when the user changes a task variable.	true

Name (Property Name)	Description	Default
Critical Path Calculations Permitted (uc.cp.calculations.permitted)	Specification (true or false) for whether or not a user can use the Critical Path feature of the Controller. <ul style="list-style-type: none"> <li>• If this property is true:                             <ul style="list-style-type: none"> <li>• The <a href="#">Toggle Critical Path View</a> displays in the <a href="#">Workflow Monitor Toolbar</a>.</li> <li>• The <a href="#">Calculate Critical Path</a> field displays in the Workflow Details.</li> </ul> </li> <li>• If this property is false:                             <ul style="list-style-type: none"> <li>• The <a href="#">Toggle Critical Path View</a> does not display in the <a href="#">Workflow Monitor Toolbar</a>.</li> <li>• The <a href="#">Calculate Critical Path</a> field does not display in the Workflow Details, either to view or modify.</li> </ul> </li> <li>• If this property changes from false to true, logged-in users must log off/on to use the Critical Path feature.</li> <li>• If this property changes from true to false, the Critical Path feature will not be honored. However, Workflow Details will be preserved.</li> </ul>	false
Critical Path Color (uc.cp.color)	Hexadecimal color code for the color of the vertices and edges along the Critical Path displayed within the Workflow Monitor while in Critical Path view. Valid values are #[0-9, a-f, A-F] (six characters).	#FF0000 (red)
Critical Path Dynamic Calculation Threshold In Seconds (uc.cp.calculations.dynamic.threshold_in_seconds)	When a task instance completes, if the difference between its end time and its projected end time is greater than or equal to the threshold specified in seconds, a critical path recalculation event will be dispatched. Valid values are 0-600.	0
Critical Path Monitor Polling Interval In Seconds (uc.cp.monitor.polling.interval_in_seconds)	Interval (in seconds) in which that Universal Controller queries for task instances with a status greater than WAITING, and less than SKIPPED, and have elapsed their projected end time. Valid values are 60+.	300
Critical Path Monitor Polling Threshold In Seconds (uc.cp.monitor.polling.threshold_in_seconds)	Threshold (in seconds) that Universal Controller uses to determine if a task instance has elapsed its projected end time when polling. Valid values are 60+.	60
Critical Path Projected Late Action Maximum (uc.cp.projected_late.action.maximum)	Number of times that a task instance can invoke Actions <a href="#">On Projected Late</a> before being muted.  As a task instance Projected End Time changes, the Projected Late flag can be set and cleared multiple times. In such situations, this property limits the number of Actions being performed On Projected Late, such as Email Notifications, for a particular instance.	5
Critical Path Projected Late Threshold In Minutes (uc.cp.projected_late.threshold_in_minutes)	Threshold beyond the Late Start Time, Late Start Duration, or Late Finish Time that the projected time must exceed in order for the task instance to be flagged as <a href="#">Projected Late</a> .	5
Custom Day Global Permitted (uc.custom_day.global.permitted)	Specification (true or false) for whether to enable (true) or disable (false) global <a href="#">Custom Days</a> .  <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>You cannot set Custom Day Global Permitted to false if there are any existing global Custom Days.</p> </div>	true
Custom Day Local Indicator Enabled (uc.custom_day.local_indicator.enabled)	Specification (true or false) for whether to enable (true) or disable (false) the Local Custom Day indicator ({L}) for Trigger and Composite Trigger components, Task Run Criteria, and Calendar Preview.	true

Name (Property Name)	Description	Default
Custom Day Strict Mode (uc.custom_day.strict.mode)	Specification (true or false) for whether or not a Custom Day referenced in the Complex section of <a href="#">Task Run Criteria</a> for a task in a workflow must belong to the Calendar in use at run time.	false
Data Backup/Purge Export Path (uc.backup.path)	Export path to use instead of the default export path ( <code>uc_backups</code> under the Tomcat directory) for Data Backup/Purge operations.	(none)
Deployment Wait For Running Instances Timeout In Seconds (uc.extension.deployment.wait_timeout_in_seconds)	Specifies the number of seconds to wait before failing the tasks waiting for the deployment.	600
Disable Tab Indicators (uc.disable.tab.indicators)	Specification (true or false) for whether or not to disable the <a href="#">tab icons</a> that indicate if tabs contain (green icon) or do not contain (gray icon) records.	false
Email Body Default Begin Marker (uc.email.body_begin_marker)	Default Begin Marker for Email Monitor Body Variables field.	-- BEGIN --
Email Body Default End Marker (uc.email.body_end_marker)	Default End Marker for Email Monitor Body Variables field.	-- END --
Email Credentials Permitted (uc.credentials.email.permitted)	Specification (true or false) for whether or not to enable the use of Email Credentials.	true
Email Monitor Polling Interval In Seconds (uc.email.monitor.polling.interval_in_seconds)	Number of seconds between each poll of a Mailbox Folder by an Email Monitor task.	120
Email Notification Audit (uc.email.notification.audit)	Specification (Success/Failed or Failed) for how to identify an Email Notification audit.	(none)
Exclude Holidays for Business Days (uc.calendar.exclude_holidays)	<p>Specification (true or false) for whether or not the Controller will consider a Business Day on which a holiday falls as a non-Business Day.</p> <ul style="list-style-type: none"> <li>• If true, holidays that fall on Business Days are considered non-Business Days.</li> <li>• If false (the default), holidays that fall on Business Days are considered Business Days.</li> </ul> <p>For example, if the default value (false) is used, and a job is defined to run on Business Days, the job will run on Christmas Day, even though it is a holiday.</p> <p>This behavior applies to Triggers, Task Run Criteria, and JavaScript functions that operate on Business Days, and provides a means to avoid having to specify a restriction or skip criteria for holidays.</p>	false
Expand Lists Automatically (uc.lists.expand_automatically.default)	Specification (Yes or No) for whether or not to Expand Lists by Default in the List / Details views.	No
Export Agent References (uc.export.agent_references)	Specification (true or false) for whether or not the Controller will export referenced Agents when exporting definition XMLs with the <a href="#">Export References</a> feature.	false



Name (Property Name)	Description	Default
Export Path (uc.export.path)	<p>Pathname where exported XML files are written.</p> <p>All cluster nodes use their own local system default export path. You should set a value for Export Path only if the path is writable by all cluster nodes.</p> <div style="border: 2px solid yellow; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>Any <a href="#">bulk import</a> or <a href="#">list import</a> of an Export Path property (from version 6.1.1.0 or earlier) will result in the server resetting the database back to the default "unset" Export Path value.</p> <p>Both <a href="#">bulk export</a> and <a href="#">list export</a> will first look for a configured Export Path property. If a value has not been set, they will use the local system default path of <code>&lt;tomcat&gt;/uc_export</code>.</p> </div>	(none)
Expose UDM Script (uc.infitran.expose_script)	<p><b>For debugging use only.</b> Specification (true or false) for whether or not the Controller prepares a <a href="#">script</a> when it launches a file transfer on a UDM installation. If troubleshooting is necessary, enabling this property allows you to view the script in the Output tab on the task instance.</p>	false
Expose Resolved Script (uc.script_library.expose_resolved_script)	<p>Specification (true or false) for whether or not to generate a SCRIPT output type capturing the resolved contents of the <a href="#">Scripts</a> script for each task instance run attempt that utilizes a script from the <a href="#">Scripts</a>. This property only applies to <a href="#">Scripts</a> defined with the <b>Resolve UAC Variables</b> option checked. Any user with the task instance Read permission for a specific task instance will be able to view the SCRIPT output type content for that specific instance.</p> <p>To avoid generating unnecessary output, we recommend enabling this property only for debugging purposes. The unresolved script content can always be viewed from <a href="#">Scripts</a>.</p> <hr/> <p>For <a href="#">Enhanced View SAP Tasks</a>, Specification (true or false) for whether or not to generate a SCRIPT output type capturing the resolved content of the generated SAP Definition Script for each task instance run attempt of an Enhanced View SAP task.</p> <p>To avoid generating unnecessary output, we recommend enabling this property only for debugging purposes.</p>	false
File Transfer Task Exclude Protocols (uc.task.file_transfer.exclude_protocols)	<p>Specification for which protocols will be excluded from the Transfer Protocol field in the File Transfer Task Details:</p> <ul style="list-style-type: none"> <li>• FTP</li> <li>• SFTP</li> <li>• UDM</li> <li>• FTPS</li> <li>• FTPES</li> </ul> <p>You can select multiple, but not all, protocols. Also, you cannot exclude a protocol if it is specified in the Transfer Protocol field for any existing File Transfer Task or Task Instance.</p>	
Flatten Reference List Fields In Chart Reports (uc.report.flatten_references)	<p>Specification (true or false) for whether or not to flatten Business Services in Chart reports when grouping by <b>Member of Business Services</b>.</p>	false
Forecast Period in Days (uc.forecast.days)	<p>Number of days to be included in a trigger forecast. See <a href="#">Displaying Trigger Forecast Information</a>.</p>	31

Name (Property Name)	Description	Default
Inherit Actions On Defined For Insert Task (uc.inherit_actions.on_defined.insert_task)	Specification (true or false) for whether or not a task inserted into a Workflow, whose initial inserted status will be Defined, will perform <a href="#">inherited Workflow Actions</a> for the Defined status.	false
LDAP Synchronization Enabled (uc.security.ldap.enabled)	Specification (true or false) for whether or not <a href="#">LDAP</a> synchronization is enabled. This allows you to retain your LDAP Settings while using or not using LDAP authentication, as desired.	false
License Key (uc.license)	License key for your installation; provided to you by your Universal Controller representative.	(none)
List Qualifying Times Format (uc.trigger.date.format.display)	Format that you want the Controller to use when listing qualifying times for Time and Cron Triggers. See <a href="#">List Qualifying Times</a> .	EEEE, MMMMMM dd, yyyy HH:mm:ss z Z
Log File Retention Period in Days (uc.log.retention)	Number of days that the Controller retains its log files.	5
Log Level (uc.log.level)	Level of logging for the Controller: <ul style="list-style-type: none"> <li>• ALL</li> <li>• TRACE</li> <li>• DEBUG</li> <li>• INFO</li> <li>• WARN</li> <li>• ERROR</li> </ul>	INFO
Login Disclaimer (uc.login.disclaimer)	Allows for the specification of free-form text to be displayed at the bottom of the <a href="#">Universal Automation Center Login page</a> .	(none)
Login Notification (uc.login.notification)	Allows for the addition of a pop-up to be displayed on the <a href="#">Universal Automation Center Login page</a> .	(none)
Maximum Extension Deployment Threads (uc.extension.deployment.max_threads)	Maximum number of concurrent threads to handle extension deployments; minimum =1, maximum = 20.	5
Maximum Nested Variable Depth (uc.variable.maximum_depth)	Maximum number of nested variables allowed.	25
Maximum Nested Variable Expansion (uc.variable.maximum_expansion)	Maximum number of nested variable characters allowed.	250000
Maximum Processing Threads (uc.threads.max)	Maximum number of processing threads used.	1000
Maximum Timer Threads (uc.timer.threads.max)	Maximum number of timer threads used.	300
Navigation Auto Collapse (uc.navigation.auto_collapse.default)	Specification (Yes or No) for whether or not the side Navigation Menu on the <a href="#">Home Dashboard</a> collapses by default.	Yes
Node Time Display (uc.node_time.display.default)	Specification (Yes or No) for whether or not the <a href="#">User Task Bar</a> will display the Cluster Node time by default.	Yes
Node Time Display Background Color (uc.node_time.display.background_color.default)	Default color to use for the Cluster Node time field background in the <a href="#">User Task Bar</a> .	White
Node Time Display Color (uc.node_time.display.color.default)	Default color to use for the Cluster Node time field in the <a href="#">User Task Bar</a> .	Black

Name (Property Name)	Description	Default
Node Time Display Time Zone (uc.node_time.display.tz.default)	Specification (true or false) for whether to display the time zone of the <b>Server</b> or the <b>User</b> in the Cluster Node time field in the <a href="#">User Task Bar</a> .	Server
OMS Log Level (uc.oms.log.level)		INFO
Open Telemetry Visualization In IFrame (uc.otel.visualization_url.iframe)	Specification (true or false) for whether the <b>Open Telemetry Visualization URL</b> will open in an iframe embedded within a controller application tab (default) or open in a new browser tab.	true
Open Telemetry Visualization URL (uc.otel.visualization_url)	<p>When an <b>Open Telemetry Visualization URL</b> is specified, the <b>Details &gt; Show Trace</b> right-click menu action for a task instance will open the trace visualization URL in an iframe and or new browser tab, depending on the configuration of <b>Open Telemetry Visualization In IFrame</b>.</p> <p>The following tokens are supported within the trace visualization URL.</p> <ul style="list-style-type: none"> <li>• <code>\${traceId}</code></li> <li>• <code>\${spanId}</code></li> </ul> <p>The URL will be resolved using the specific trace id and span id associated with the task instance.</p> <p>For example,</p> <pre>https://hostname:port/trace/\${traceId}?uiFind=\${spanId} &amp;uiEmbed=v0 → https://hostname:port/trace/ a629c8a23114d1a6fafc03291c672f68? uiFind=eb17913c4fa001f9&amp;uiEmbed=v0</pre> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p>This is only applicable if you have configured an Open Telemetry Trace exporter.</p> </div>	(none)
Operational Memo Reset On Re-run uc.task_instance.operational_memo.reset_on_re-run	Specification (true or false) for whether or not to reset the Operational Memo field on a task instance re-run.	true
Perform Actions On Defined For Tasks Within Skipped Workflow (uc.perform_actions.on_defined.tasks_within_skipped_wf)	Specification (true or false) for whether or not tasks within a workflow that is being skipped due to trigger-time run criteria should perform Actions on <a href="#">Defined</a> status and evaluate their own run criteria.	false
Perform Actions On Defined Workflow First (uc.perform_actions.on_defined.wf_first)	<p>Specification (true or false) for whether or not to allow a workflow, on <a href="#">Defined</a> status, to process its own <a href="#">Actions</a> prior to processing any Actions for its children task instances on Defined status.</p> <p>This might be leveraged if, on Defined status, a workflow initializes a variable using the <a href="#">Set Variable Action</a>, and a child task instance, also on Defined status, leverages that same variable in its own Set Variable Action.</p>	false
Perform Actions On Halt (uc.perform_actions.on_halt)	Specification (true or false) for whether or not to allow the triggering of notifications for a task instance status change to Finished when issuing a <a href="#">Force Finish (Halt)</a> or <a href="#">Force Finish/Cancel (Halt)</a> command.	true
Picker Fetch Limit (uc.picker.fetch_limit)	<p>Fetch limit for all picker windows; minimum =200, maximum = 1000.</p> <p>For example, the value of this property determines how many tasks can be fetched at any one time for stonebranchbundle-01.</p>	200

Name (Property Name)	Description	Default
Platform Log Level (uc.platform.log.level)	Level of logging for the user interface framework: <ul style="list-style-type: none"> <li>• ALL</li> <li>• TRACE</li> <li>• DEBUG</li> <li>• INFO</li> <li>• WARN</li> <li>• ERROR</li> <li>• OFF</li> </ul>	WARN
Promote By Business Service Membership Permitted (uc.bundle.promote_by_bsrvc_membership.permitted)	Specification (true or false) for whether or not you can promote a Bundle by <a href="#">Business Service Membership</a> . You cannot set this property to false if the <b>Promote Members of Business Services</b> or <b>Visible To</b> field in any Bundle records has a non-empty value. Also, if the property is set to false: <ul style="list-style-type: none"> <li>• If the <b>Promote Members of Business Services</b> or <b>Visible To</b> field in a Bundle record has a non-empty value, Bundle promotion (including schedule Bundle promotion) is prohibited for that record.</li> <li>• If the <b>Promote Members of Business Services</b> and <b>Visible To</b> field in a Bundle record has an empty/blank value, the <b>Promote By Business Service Membership</b> section will be hidden for this record.</li> </ul>	true
Promotion Follow References Permitted (uc.promotion.follow_references.permitted)	Specification (true or false) for whether or not to permit utilizing follow reference option for Promotion.	true
Promotion Follow Report References (uc.promotion.report.follow_references)	Specification (true or false) for whether or not to promote referenced reports in an email task or email notification when Follow References is true for the promotion.	true
Promotion History Retention Period in Days (uc.promotion_history.retention)	Number of days that the Controller retains <a href="#">Promotion History</a> .	60
Promotion Schedule Retention Period In Days (uc.promotion_schedule.retention)	Number of days that a <a href="#">Promotion Schedule</a> will remain available after the promotion has completed successfully.	7
Promotion Validate Report References (uc.promotion.report.validate_references)	Specification (true or false) for whether or not to implement <a href="#">report-related promotion validation</a> .  <div style="border: 2px solid orange; padding: 10px; margin: 10px 0;">                         This property applies to the target system to which a promotion payload is being promoted.                     </div>	true
Purge Activity By Primary Key Limit (uc.backup.purge_by_primary_key.limit)	Number of task instances to purge per transaction while performing the Activity purge (by primary key).	500
Purge All Non-Default Users And Groups Permitted (uc.purge.non_default_users_and_groups.permitted)	Specification (true or false) for whether or not to allow the <a href="#">Purge All Non-Default Users And Groups</a> Server Operation to be run.	false
Purge Dates From Custom Day List Older Than (uc.custom_day.purge_dates_older_than)	Number of days old (1-999) that a date in a <a href="#">Custom Day</a> List of Dates will cause it to be purged automatically.	(none)
Re-run (Suppress Intermediate Failures) Permitted (uc.task_instance.rerun.suppress_intermediate_failures.permitted)	Specification (true or false) for whether or not you can manually Re-run a task instance specifying that intermediate failures be suppressed.	true

Name (Property Name)	Description	Default
Reconcile Built-In Universal Template Changes On Promotion (uc.promotion.universal_template.system_template.reconcile_changes)	Controls the promotion behavior when promoting a Universal Task based on a built-in Universal Template that has changed.	false

Name (Property Name)	Description	Default
Record New In Tab (uc.record.new_in_tab.default)	<p>Specification (Yes or No) for whether or not to display the new record editor under a new tab when clicking on the following icons:</p> <ul style="list-style-type: none"> <li>•  for non-related record list</li> <li>•  from the Services menu</li> <li>• <b>New Task...</b> in workflow editor</li> </ul> <p>Click here to see list of affected record types...</p> <ul style="list-style-type: none"> <li>• Agent Cluster</li> <li>• Task</li> <li>• Trigger</li> <li>• Application</li> <li>• Back up &amp; Purge</li> <li>• Bundle</li> <li>• Bundle Target</li> <li>• Calendar</li> <li>• Credentials</li> <li>• Custom Day</li> <li>• Database/Email/Peoplesoft/SAP Connection</li> <li>• Email Template</li> <li>• Business Services</li> <li>• Filter</li> <li>• OAuth Client</li> <li>• Oms Server</li> <li>• Report</li> <li>• Script</li> <li>• Simulation</li> <li>• Universal Event Template</li> <li>• Universal Template</li> <li>• User</li> <li>• Group</li> <li>• Global Variable</li> <li>• Virtual Resource</li> <li>• Webhook</li> <li>• Task Instance</li> <li>• Audit</li> <li>• Agent</li> <li>• Promotion History Item</li> <li>• Trigger Forecast</li> <li>• History</li> <li>• Widget</li> <li>• Color</li> <li>• Promo History</li> <li>• Promo Schedule</li> <li>• Cluster Node</li> <li>• Version (of the above types)</li> </ul>	No

Name (Property Name)	Description	Default
<p>Record Open In Tab (uc.record.open_in_tab.default)</p>	<p>Specification (Yes or No) for whether or not to display the record Details under a new tab when double clicking (or clicking on the icon) for a record in the following cases:</p> <ul style="list-style-type: none"> <li>• Any non-related record list</li> <li>• Workflow tree</li> <li>• Workflow timeline</li> </ul> <p>Click here to see list of affected record types...</p> <ul style="list-style-type: none"> <li>• Agent Cluster</li> <li>• Task</li> <li>• Trigger</li> <li>• Application</li> <li>• Back up &amp; Purge</li> <li>• Bundle</li> <li>• Bundle Target</li> <li>• Calendar</li> <li>• Credentials</li> <li>• Custom Day</li> <li>• Database/Email/Peoplesoft/SAP Connection</li> <li>• Email Template</li> <li>• Business Services</li> <li>• Filter</li> <li>• OAuth Client</li> <li>• Oms Server</li> <li>• Report</li> <li>• Script</li> <li>• Simulation</li> <li>• Universal Event Template</li> <li>• Universal Template</li> <li>• User</li> <li>• Group</li> <li>• Global Variable</li> <li>• Virtual Resource</li> <li>• Webhook</li> <li>• Task Instance</li> <li>• Audit</li> <li>• Agent</li> <li>• Promotion History Item</li> <li>• Trigger Forecast</li> <li>• History</li> <li>• Widget</li> <li>• Color</li> <li>• Promo History</li> <li>• Promo Schedule</li> <li>• Cluster Node</li> <li>• Version (of the above types)</li> </ul>	<p>No</p>

Name (Property Name)	Description	Default
Recurring Task Launch Skip Condition Default (uc.recurring.task.skip_condition.default)	Default value of the <a href="#">Task Launch Skip Condition</a> field for a <a href="#">Recurring Task</a> : <ul style="list-style-type: none"> <li>• None</li> <li>• Active</li> <li>• Active By Recurring Task Instance</li> </ul>	None
Recurring Task Minimum Frequency In Seconds (uc.recurring.task.minimum_frequency_in_seconds)	Minimum duration, in seconds, that a <a href="#">Recurring Task</a> can have for a <a href="#">Recurrence Interval</a> . The minimum value is 0.	5
Reference New In Tab (uc.reference.new_in_tab)	Specifies whether to use the currently defined system default, or to select <b>Yes</b> or <b>No</b> , for whether or not to display the record Details under a new tab when creating a reference record.	No
Reference Open In Tab (uc.reference.open_in_tab.default)	Specification (Yes or No) for whether or not to display the record Details under a new tab when viewing a reference field.	No
Remote File Monitor Task Exclude Protocols (uc.task.ftp_file_monitor.exclude_protocols)	Specification for which protocols will be excluded from the Server Type field in the Remote File Monitor Task Details: <ul style="list-style-type: none"> <li>• FTP</li> <li>• SFTP</li> <li>• FTPS</li> <li>• FTPES</li> </ul> You can select multiple, but not all, protocols. Also, you cannot exclude a protocol if it is specified in the Server Type field for any existing Remote File Monitor Task or Task Instance.	
Report Average Color (uc.report.average_color.default)	Specification of the default hexadecimal color of the average line when using the Show Average option on Bar Chart/Horizontal and Bar Chart/Vertical <a href="#">reports</a> .	#000000
Report Group Threshold (uc.report.group_threshold.default)	If the Group Threshold field on the Report is -- System Default --; Maximum number of groups to display on a <a href="#">Chart report</a> . All groups above the threshold will be displayed in one group named Other.  <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b> This option formerly was named System Default Report Group Threshold.</p> </div>	10
Report Threshold Color (uc.report.threshold_color.default)	Specification of the default hexadecimal color of the threshold line when using the Show Threshold option on Bar Chart/Horizontal and Bar Chart/Vertical <a href="#">reports</a> .	#000000
Resolvable Credentials Permitted (uc.credentials.resolvable.permitted)	Specification (true or false) for whether or not the use of <a href="#">Resolvable Credentials</a> is enabled.	false
Retain Overridden Step Codes On z/OS Task Re-run (uc.task_instance.rerun.zos.retain_step_codes)	Specification (true or false) for whether or not a changed return code of a previously executed step in a z/OS task is retained when the task is re-run.	false
Retrieve Output Default Number Of Lines (uc.retrieve_output.maximum_lines)	Specifies the default value for the <a href="#">Number of Lines</a> field on the <a href="#">Retrieve Output</a> dialog. Additionally, if the <a href="#">Number of Lines</a> field is blank, it specifies the limit for the number of lines retrieved when <a href="#">Automatic Output Retrieval</a> is enabled on a task.	100
Retrieve Output Maximum Lines (uc.retrieve_output.maximum_lines.limit)	Specifies the maximum number of lines that can be requested when <a href="#">retrieving output</a> .	(none)

Name (Property Name)	Description	Default
SAP Task ABAP Program Name Fetch Limit (uc.task.sap.abap_program.fetch_limit)	Specifies the maximum number of results (10-5000) that can be retrieved from the SAP system for ABAP Program Name dynamic choice select item.	500
Scheduled Report 3D Pie Chart (uc.report.scheduled.3d_pie_chart.default)	Specification (Yes or No) for whether Pie Chart reports are rendered in 2D (No) or 3D (Yes).	No
Scheduled Report Fetch Limit (uc.report.scheduled.fetch_limit)	Maximum number of records to fetch for inclusion in a List report (minimum is 1; no maximum). The report will indicate if the specified maximum has been reached.	1,000
Scheduled Report Image Height (uc.report.scheduled.image_height.default)	Specification for the height (in pixels) of PNG chart report images.	500
Scheduled Report Image Width (uc.report.scheduled.image_width.default)	Specification for the height (in pixels) of PNG chart report images.	750
Scheduled Report Inline Image (uc.report.scheduled.inline_image.default)	Specification (Yes or No) for whether to inline chart report images within the email (Yes) or include them as attachments (No). If any other attachments, such as standard error and standard output, are included, this property does not apply; the chart report image will be delivered as an attachment.	Yes
Scheduled Report PDF Orientation (uc.report.scheduled.pdf.orientation.default)	Specification (Landscape or Portrait) for the page layout of the PDF.	Landscape
Scheduled Report PDF Size (uc.report.scheduled.pdf.size.default)	Specification (Letter, Legal, or A4) for the page size of the PDF.	Letter
Scheduled Report Time Zone (uc.report.scheduled.tz.default)	Specification for whether to obtain the time zone from the Server (Server) or from the User record of the Execution User (User).  This property applies to all report types (List, Bar Chart/Horizontal, Bar Chart/Vertical, and Pie Chart).	Server
Script Resolve Variables Default (uc.script.variables.resolve.default)	Specification (true or false) for whether or not the <a href="#">Resolve UAC Variables</a> option in <a href="#">scripts</a> is enabled by default.	false
Show Last Login (uc.login.show_last_login)	Specification (true or false) for whether or not the last login time is shown in the console when logging into the user interface.  For more information and examples, see <a href="#">Show Last Login</a> .	true
Show Metadata (uc.form.show_metadata.default)	Specification (Yes or No) for whether or not the <a href="#">Metadata</a> section displays automatically in the the Details of all Controller records.  You can override this system default configuration by customizing the <a href="#">Show Metadata</a> user preference.	No
Show Variables Fetch Global Automatically (uc.show_variables.fetch_global.default)	Specification (Yes or No) for whether or not to fetch and display Global Variables automatically for the <a href="#">Show Variables</a> action.  If No, the visibility of Global Variables in Show Variables can still be toggled, on demand, by the Show Global and Hide Global buttons.  You can override this system default configuration by customizing the <a href="#">Show Variables Fetch Global Automatically</a> user preference.	No
SMTP Debug (uc.smtp.debug)	Specification (true or false) for whether or not additional debug information about any <a href="#">Email Connection</a> issues (for example, Email Connection Test fails or errors while sending emails) will be included in the log.	false

Name (Property Name)	Description	Default
SQL/ Stored Procedure Close Additional Results Sets (uc.sql_handler.close_additional_result_sets)	Specification (true or false) for whether or not to close any additional Result Sets if multiple Result Sets have been returned by SQL or Stored Procedure tasks. <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>You should not change this property to false unless there is a backwards compatibility issue.</p> </div>	true
SQL/ Stored Procedure Ignore Update Count If No Results (uc.sql_handler.update_count.ignore_if_no_results)	Specification (true or false) for whether or not to create a SQL Results record for rows affected when no results (result sets or update counts) are returned by SQL or Stored Procedure tasks.	false
SQL/Stored Procedure Maximum Rows (uc.sql_handler.maximum_rows)	Specifies the maximum number of rows that can be returned from an <a href="#">SQL task</a> or <a href="#">Stored Procedure task</a> .	(none)
Start Server Paused (uc.startup.paused)	Specification (true or false) for whether or not a Universal Controller cluster node should become paused when starting up. <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>This property is applicable only for a Universal Controller cluster node that is starting up. Any cluster node that has already started will not be impacted. Once a cluster node is in paused mode, it will remain in paused mode until running the <a href="#">Resume Cluster Node</a> server operation for that specific cluster node.</p> </div>	false
Stop Unknown Application Monitors (uc.application.stop_unknown_monitors)	Specification (true or false) for whether or not to stop any application monitors currently running on an Agent if the Controller is no longer managing those monitors (Windows and Linux/Unix only).	false
Strict Dashboard Create Constraints (uc.dashboard.create_constraints.strict)	Specification (true or false) for whether or not to restrict dashboard creation only to users with the ops_admin, ops_report_admin, ops_dashboard_group, or ops_dashboard_global <a href="#">role</a> .	false
Strict Report Create Constraints (uc.report.create_constraints.strict)	Specification (true or false) for whether or not to restrict report creation only to users with the ops_admin, ops_report_admin, ops_report_group, or ops_report_global <a href="#">role</a> .	false
System Default Activity Quick Filters (uc.activity.quick_filters.default)	<a href="#">Task instance status types</a> to include in the Active, Blocked, Completed, and Problem <a href="#">Quick Filters</a> . You can add statuses to or delete statuses from any of these Quick Filter. You also can delete any of these Quick Filters and create you own Quick Filters.	Active=!180,!190,!200; Blocked=10,20,23,30,33, 60; Completed=180,190,200 ; Problem=35,81,99,110,1 20,125,130,140

Name (Property Name)	Description	Default
System Default CLI Bulk Import Path (uc.bulk_import.path.default)	Pathname from where imported XML files are written.	<code>&lt;tomcat-home&gt;/uc_import</code> or <code>&lt;tomcat-home&gt;\uc_import</code> ( <code>&lt;tomcat-home&gt;</code> is the base tomcat installation directory.)
System Default Command Line Access (uc.user.command_line.default)	Specification (Yes or No) for all users whose <b>Command Line access</b> field in their <a href="#">User Details</a> is set to <b>-- System Default --</b> , for whether or not to control a user's ability to access the Controller through the Command Line Interface (CLI).	Yes
System Default Confirm Launch Command (uc.user.confirm.launch.default)	Specification (Yes or No) for whether or not a user is prompted with a Confirmation dialog when issuing the Launch command.  <div style="border: 1px solid orange; padding: 5px;"> <p><b>Note</b></p> <p>If a task is launched that has been <a href="#">modified but not saved</a>, a Confirmation dialog displays even if the System Default Confirm Launch Command is set to No.</p> </div>	Yes
System Default Confirm Task Instance Commands (uc.user.confirm.task_instance.commands.default)	Specification (Yes or No) for whether or not to enable command confirmations when issuing commands against task instances.	No
System Default Maximum Versions (uc.version.maximum.default)	Maximum number of version records (1 to 255) to maintain per definition.	100
System Default Trigger Simulate Forecast (uc.trigger.simulation)	Specification (true or false) 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. All other aspects of the trigger execution, including generation of forecast data, are enabled.  You can still force a trigger by using the Trigger Now command or launch a task by using the Launch command.	false
System Default Update Virtual Resource Limit On Promotion (uc.promotion.virtual_resource.update_limit.default)	Specification (Yes or No) for whether or not virtual resource limits are updated as part of a <a href="#">promotion</a> .	Yes
System Default Wait/Delay Workflow Only (uc.timewait.workflow.only.default)	Specification (Yes or No) for whether or not to apply Wait/Delay Options to a task only if it runs within a workflow.	Yes
System Default Web Browser Access (uc.user.browser.default)	Specification (Yes or No), for all users whose <b>Web Browser access</b> field in their <a href="#">User Details</a> is set to <b>-- System Default --</b> , for whether or not to control a user's ability to access the Controller through the user interface.	Yes
System Default Web Service Access (uc.user.web_service.default)	Specification (Yes or No), for all users whose <b>Web Service access</b> field in their <a href="#">User Details</a> is set to <b>-- System Default --</b> , for whether or not to control a user's ability to access the Controller through the RESTful Web Services API.	Yes

Name (Property Name)	Description	Default
System Details Database Information Restricted (uc.widget.system_details.db_info_restricted)	Specification (true or false) for whether or not the following database information on the <a href="#">System Details</a> widget is visible only to users assigned the <a href="#">ops_admin role</a> or <a href="#">ops_server_operation_admin</a> role: <ul style="list-style-type: none"> <li>• Database Type</li> <li>• Database Name</li> <li>• Database URL</li> <li>• Database Connections</li> </ul> These restrictions apply no matter where the System Details widget is accessed from: <ul style="list-style-type: none"> <li>• Home Dashboard</li> <li>• Custom Dashboard</li> <li>• Widget List Preview</li> <li>• System Identifier on User Task Bar</li> <li>• System Clock on User Task Bar</li> </ul>	
System Details Expanded Categories (uc.widget.system_details.expanded.default)	Specification for which <a href="#">System Details</a> widget categories to expand by default: <ul style="list-style-type: none"> <li>• Cluster Node</li> <li>• Release</li> <li>• Memory</li> <li>• License</li> <li>• Database</li> </ul>	Cluster Node
System Identifier (uc.system_identifier)	User-selected name displayed in the System Identifier field on the User Task Bar.	(none)
System Identifier Background Color (uc.system_identifier.background_color)	Background color for the System Identifier field on the User Task Bar.	black
System Identifier Color (uc.system_identifier.color)	Text color for the System Identifier field on the User Task Bar.	white
Task Automatic Output Retrieval Default (uc.task.output_return_type.default)	Default Automatic Output Retrieval field value for <a href="#">Windows</a> and <a href="#">Linux/Unix</a> tasks and for <a href="#">Universal Templates</a> .	None
Task Field Resolution Required (uc.task.field.resolution.required)	Specification (true or false) for whether or not a task instance transitions to Start Failure if qualifying fields - such as Command, Script, Parameters (including z/OS Parameters), and Environment Variables - remain unresolved at runtime.	false
Task Instance Normalize Business Service Membership (uc.task_instance.normalize_bsrvc)	Indicates if the Universal Controller is normalizing Business Service membership for Task Instance and History records: <ul style="list-style-type: none"> <li>• Disabled Business Service normalization is not enabled.</li> <li>• Enabled/Normalizing Business Service normalization is enabled. New Task Instance and History records are being normalized; however, existing Task Instance and History record normalization has not completed.</li> <li>• Enabled/Normalized Business Service normalization is enabled. New Task Instance and History records are being normalized, and normalization of existing Task Instance and History records has completed.</li> </ul> <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>This property is read-only. It can be updated only by running the <a href="#">Enable Task Instance Business Service Normalization</a> and <a href="#">Disable Task Instance Business Service Normalization</a> server operations.</p> </div>	Disabled

Name (Property Name)	Description	Default
Task Launch Reason Required (uc.task.launch_reason.required)	Specification (true or false) for whether or not a new field, launch reason, will be added to the manual launch command of a task or trigger and these details will be added to the Notes section of the task instance details.	false
Task Output Path Functions Permitted (uc.task.output_path.functions.permitted)	Specification (true or false) for whether or not Output Path tokens generated by <a href="#">Task Instance Output Path</a> and <a href="#">Sibling Task Instance Output Path</a> functions are permitted.	true
Task Retry Maximum (uc.task.retry_maximum)	Specification for whether or not to enforce a maximum number of task instance retries. Valid values: <ol style="list-style-type: none"> <li>1. blank: No limit on Maximum Retries; Retry Indefinitely is permitted.</li> <li>2. &gt;=1: Limit on Maximum Retries; Retry Indefinitely is not permitted.</li> </ol> <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>If any current tasks are in violation of the selected &gt;=1 Task Retry Maximum, an error message will occur. To see which tasks have a Maximum Retries value specified, or have Retry Indefinitely selected, run a Report on all tasks or display the Maximum Retries and Retry Indefinitely columns on the All Tasks list.</p> </div>	blank
Task Simulation Permitted (uc.task.simulation.permitted)	Specification (true or false) for whether or not the <a href="#">simulation</a> feature is enabled. When disabled: <ul style="list-style-type: none"> <li>• <b>Simulation</b> service no longer available from <b>Services</b> menu.</li> <li>• Auto open for <b>Simulation</b> tab ignored.</li> <li>• <b>Simulate</b> option no longer available from <b>Task</b> and <b>Task Instance</b> forms.</li> <li>• <b>Simulate</b> option no longer available from <b>Launch with Variables...</b> and <b>Trigger Now...</b> commands.</li> </ul>	true
Task Time Zone Preference (uc.task.time_zone_preference.default)	Specification (Server or Inherited) for whether the time zone for a task is evaluated on the time zone of the server or the time zone of the Parent Workflow or Trigger / Launch specification.	Server
Task Variable Path Function Permitted (uc.task.variable_path.function.permitted)	Specification (true or false) for whether or not task variable path function is permitted.	true
Task Wait For Output Timeout In Seconds (uc.task.wait_for_output.timeout_in_seconds)	If Wait For Output is enabled for a task where <a href="#">automatic output retrieval</a> is selected (potentially, to be used by a successor task); Length of time (in seconds) that the task will wait (that is, remain Running) until the output is returned by the Agent so that the successor task does not run before the output is available.	60
Time Trigger Minimum Frequency In Seconds (uc.trigger.time.minimum_frequency_in_seconds)	Minimum frequency - in seconds - of the <a href="#">Time Interval</a> for a Time Trigger.	5

Name (Property Name)	Description	Default
Track Counts For Unlimited Execution Limit (uc.execution_limit.unlimited.counts)	<p>Specification (true or false) for enabling the tracking of task instances running concurrently if the Task Execution Limit field for an Agent or Agent Cluster is set to <b>Unlimited</b>.</p> <p>The following restrictions apply to this property:</p> <ul style="list-style-type: none"> <li>• If you change this property, all UI behavior based on this property will require logging out/logging in to take effect.</li> <li>• You cannot change this property from <b>false</b> to <b>true</b> while there are one or more task instances running against an Agent and/or Agent Cluster.</li> <li>• If you change this property from <b>false</b> to <b>true</b>, all Agents and Agent Clusters will begin tracking task counts.</li> <li>• If you change this property <b>true</b> to <b>false</b>, all Agents and Agent Clusters that are not <b>Limited</b> will have their <b>Current Count</b> column set to 0.</li> <li>• If this property is <b>false</b>, and an Agent or Agent Cluster is <b>Unlimited</b>, the <b>Current Count</b> column will display as blank in the list and will be hidden in the Agent / Agent Cluster Details.</li> <li>• If this property is <b>true</b>, and an Agent or Agent Cluster is <b>Unlimited</b>, the <b>Current Count</b> column will display the current count and the current count will be visible in the Agent / Agent Cluster Details.</li> <li>• If this property is <b>false</b>, and you change an Agent / Agent Cluster from <b>Limited</b> to <b>Unlimited</b>, the current count will be reset back to 0.</li> <li>• If this property is <b>true</b> or <b>false</b>, and you change an Agent / Agent Cluster from <b>Unlimited</b> to <b>Limited</b>, the current count will be reset back to 0.</li> </ul> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>For optimal performance, we recommend that you leave this property set to <b>false</b>.</p> </div>	false
Trigger Task Launch Skip Condition Default (uc.trigger.skip_condition.default)	<p>Default value of the <a href="#">Task Launch Skip Condition</a> field for all trigger types:</p> <ul style="list-style-type: none"> <li>• None</li> <li>• Active</li> <li>• Active By Trigger</li> </ul>	None
Universal Event Extension Publish Audit (uc.universal_event.publish.extension.audit)	<p>Specification (true or false) for whether or not an audit record is generated for each Universal Event published through an Extension-based Universal Task Instance.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>Enabling this property can cause a large amount of audit to be generated.</p> </div>	false
Universal Event Web Service Publish Audit (uc.universal_event.publish.web_service.audit)	<p>Specification (True or false) for whether or not an audit record is generated for each Universal Event published through the Web Service API.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>Enabling this property can cause a large amount of audit to be generated.</p> </div>	false
Universal Task Interact with Desktop Permitted (uc.task.universal.interact_with_desktop.permitted)	<p>Specification (true or false) for whether or not to permit utilizing Interact with Desktop option for Universal Task.</p>	false

Name (Property Name)	Description	Default
Universal Template Extension Maximum Bytes (uc.universal_template.extension.maximum_bytes)	Maximum number of bytes (6000000 - 1000000000) for a Universal Template Extension Archive.  <div style="border: 1px solid red; padding: 10px;"> <p>If you are deploying large extensions, it is important that you <a href="#">configure the Java heap</a> size adequately.</p> <p>Things to consider.</p> <ul style="list-style-type: none"> <li>• # of agents configured to accept the extension(s).</li> <li>• # of agents configured to deploy on-registration and how many would be registering simultaneously.</li> <li>• # of parallel, on-demand deployments, where deployment happens the first time the extension needs to execute on a specific agent.</li> </ul> </div>	6000000
URL Action Parameter Enabled (uc.url.action_parameter.enabled)	Specification (true or false) for whether or not to enable the URL Action parameter, which lets you automatically perform an <a href="#">action</a> in the user interface.	true
Use Checksum Validation (uc.use.checksums)	Specification (true or false) for whether or not to implement checksum validation in order to prevent tampering of Controller data outside of the Controller system.	false
Use Dashboard Visibility Icons (uc.dashboard.use_visibility_icons.default)	Specification (Yes or No) of the system default for the <a href="#">Use Dashboard Visibility Icons</a> user preference.	Yes
User Defined Task Field 1 Label (uc.task.custom_field1.label)	Label for this <a href="#">user-defined field</a> that will display in the General Information section of the Details for all existing and new tasks and task instances.	(none)
User Defined Task Field 1 Required (uc.task.custom_field1.required)	Specification (true or false) for whether or not User Defined Task Field 1 is required.	false
User Defined Task Field 2 Label (uc.task.custom_field2.label)	Label for this <a href="#">user-defined field</a> that will display in the General Information section of the Details for all existing and new tasks and task instances.	(none)
User Defined Task Field 2 Required (uc.task.custom_field2.required)	Specification (true or false) for whether or not User Defined Task Field 2 is required.	false
User Defined Trigger Field 1 Label (uc.trigger.custom_field1.label)	Label for this <a href="#">user-defined field</a> that will display in the General Information section of the Details for all existing and new triggers.	(none)
User Defined Trigger Field 1 Required (uc.trigger.custom_field1.required)	Specification (true or false) for whether or not User Defined Trigger Field 1 is required.	false
User Defined Trigger Field 2 Label (uc.trigger.custom_field2.label)	Label for this <a href="#">user-defined field</a> that will display in the General Information section of the Details for all existing and new triggers.	(none)
User Defined Trigger Field 2 Required (uc.trigger.custom_field2.required)	Specification (true or false) for whether or not User Defined Trigger Field 2 is required.	false

Name (Property Name)	Description	Default
User Interface Density (uc.user_interface.density.default)	Default density setting (font and control size offset) for the user interface: <ul style="list-style-type: none"> <li>• Dense (-2)</li> <li>• Compact (-1)</li> <li>• Standard ( 0)</li> <li>• Expanded (+1)</li> <li>• Spacious (+2)</li> </ul> When the <a href="#">User Interface Density</a> user preference is – System Default –, this property specifies the density to be used.	Standard
User Interface Theme (uc.user_interface.theme.default)	Default display theme to use for the user interface: <ul style="list-style-type: none"> <li>• Light</li> <li>• Dark</li> </ul> When the <a href="#">User Interface Theme</a> user preference is – System Default –, this property specifies the theme to be used.	Light
Virtual Page Fetch Limit (uc.virtual_page.fetch_limit)	Virtual page size to be used when scrolling in a list.	100
Virtual Page Pick List Fetch Limit (uc.virtual_page.pick_list.fetch_limit)	Virtual page size to be used when scrolling the options in a drop-down list that are bound by another data source (for example, the Task To Monitor drop-down list options in the <a href="#">Task Monitor Task Details</a> ).	100
Wait For Running Extensions To Complete Before New Deployment (uc.extension.deployment.wait_for_running_tasks)	Specification (true or false) for whether or not an extension deployment to an Agent will wait for any currently running Task Instances of that Template on that same Agent.	true
Web Service Application Concurrent Request Limit (uc.web_service.application.concurrent_request.limit)	Controls the number of concurrent requests for the application (that is, the Universal Controller server).  The application-level concurrent request limit cannot be less than 1 or less than the <a href="#">user-level concurrent request limit</a> (if specified).	(none; that is, no limit)
Web Service Basic Auth Permitted (uc.web_service.basic_auth.permitted)	Specification (true or false) for whether or not Basic Authentication is permitted for the controller Web service APIs.	true
Web Service Credentials Permitted (uc.credentials.web_service.permitted)	Allows enabling/disabling the use of Web Service credentials. <ul style="list-style-type: none"> <li>• If false:                             <ul style="list-style-type: none"> <li>• Creation of new Web Service credentials will be prohibited.</li> <li>• All Web Service Task Instances using authentication will transition into the Start Failure status.</li> </ul> </li> <li>• If false on a target Controller to which you are promoting, the promotion will fail.</li> </ul>	true
Web Service Default Response Content (uc.web_service.response.content.default)	Default type of content, XML or JSON, for web service responses.	XML
Web Service Memory Utilization Threshold (uc.web_service.memory.utilization.threshold)	Percentage of allocated memory in use that defines a threshold for prohibiting access to the RESTful Web Service API.  The threshold must be a whole number (integer) and cannot be less than 1 or more than 99.	(none; that is, no threshold)
Web Service Personal Access Token Auth Headers (uc.web_service.personal_access_token_auth_headers)	Specifies a comma-delimited list of alternative authorization headers where a Personal Access Token can be specified for Web Service authentication.  See <a href="#">Web Service authentication</a> examples.	(none)

Name (Property Name)	Description	Default
Web Service Personal Access Token Auth Permitted (uc.web_service.personal_access_token_auth.permitted)	Specification (true or false) for whether or not Personal Access Token Authentication is permitted for the controller Web Service APIs.	true
Web Service Personal Access Token Maximum Expiration In Days (uc.web_service.personal_access_token.maximum_expiration_in_days)	Controls the maximum expiration day for a web service personal access token. If specified, expiration for any newly generated <a href="#">Personal Access Token</a> must be within the maximum.	(none; that is, no limit)
Web Service Task Insecure Permitted (HTTP) (uc.task.web_service.http.insecure.permitted)	Specification (true or false) for whether or not an Insecure field is added to Web Service tasks. which can allow the <a href="#">Web Service</a> task to proceed with a TLS/SSL connection that is considered insecure. <div data-bbox="504 703 1291 887" style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>This property cannot be set to false if there are existing Web Service tasks with Insecure enabled.</p> </div>	false
Web Service Task Output MIME Type Exclusion List (HTTP) (uc.task.web_service.output.mime_type.exclusion_list)	List of content-types, such as binary, that are discarded to avoid being stored as Web Service Task output, which are not supported and can lead to task instance run failure.	image/*,audio/*,video/*,application/pdf
Web Service Task Resolvable Credentials Functions Permitted (uc.task.web_service.credentials.resolvable.functions.permitted)	Specification (true or false) for whether or not to permit Resolvable Credential functions support in Web Service tasks. <div data-bbox="504 1160 1291 1368" style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>In order to enable Resolvable Credential functions support for Web Service Task, this property and the <a href="#">Resolvable Credentials Permitted</a> system property must set to true.</p> </div>	false
Web Service Task System Proxy Property Inheritance (HTTP) (uc.task.web_service.http.proxy_property_inheritance)	Specification (true or false) for whether or not to use the Java proxy system properties for HTTP Web Service tasks.	false
Web Service Task Timeout (uc.task.web_service.timeout)	Number of seconds to wait for the request to complete, if a <a href="#">Timeout</a> value is not specified for a <a href="#">Web Service</a> task.	60
Web Service Task URL Whitelist Regular Expression (uc.task.web_service.url.whitelist)	Regular Expression that specifies the URLs supported by the <a href="#">Web Service</a> task. (The default value specifies that all URLs are supported.) <p>If you have a specific regex that you want to be case-insensitive, pre-pend the following option to the regex: <code>(?i)".(?)i</code></p>	^https?://.+
Web Service User Concurrent Request Limit (uc.web_service.user.concurrent_request.limit)	Controls the number of concurrent requests per unique user ID. <p>The user-level concurrent request limit cannot be less than 1 or greater than the <a href="#">application-level concurrent request limit</a> (if specified).</p>	(none; that is, no limit)

Name (Property Name)	Description	Default
Windows/Linux Scripts Permitted (uc.script.distributed.permitted)	Specification (true or false) for whether to enable (true) or disable (false) the use of the <a href="#">Script</a> Script type. <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>You can set Windows/Linux Scripts Permitted to false only if currently there are no <a href="#">Script</a> Script types defined in the database.</p> </div>	true
Windows Task Interact with Desktop Permitted (uc.task.windows.interact_with_desktop.permitted)	Specification (true or false) for whether or not to permit utilizing Interact with Desktop option for Windows Task.	false
Workflow Monitor Task Description Enabled (uc.workflow.monitor.task.description.enabled)	Specification (true or false) for whether to enable (true) or disable (false) the display of a <b>Task Description</b> field in the <a href="#">Task Instance Details</a> for a task instance in a Workflow Monitor.	true
Workflow Search Result Limit (uc.workflow.search_result_limit)	Results limit when querying for task records from the <a href="#">Task Find</a> or <a href="#">Open Workflow</a> pop-up.	200
z/OS Task Increment Number Of Override Instances On Force Finish (uc.task.zos.override_run_count.increment_on_force_finish)	Specifies (true or false) if the <b>Number Of Override Instances</b> should be incremented when a z/OS task instance is force finished, like it does when completed successfully. Once incremented, if the <b>Number Of Override Instances</b> is greater than or equal to the z/OS task instance <b>Override Instance Count for Deletion</b> , the controller will automatically request the agent delete the override JCL.	true

### 16.3.1 Overriding Universal Controller System Properties

You can override any Universal Controller system property by adding it to the [Universal Controller Start-up Properties \(uc.properties\)](#) file and [restarting the Controller](#).

Any Universal Controller system property added to `uc.properties` must be in the same format as the `uc.properties` properties: `<Property Name>=<value>`. For example: `uc.startup.paused=true`

When the restarted Controller reads the `uc.properties` file, it updates the database with the value of any Universal Controller system property included in the file. It then removes that property from the file.

### 16.3.2 Deprecated System Properties

The following system properties have been deprecated and hidden in Universal Controller. However, if you have upgraded Universal Controller from a release earlier than 7.1.0.0, you may still see them in your System Properties list.

Name (Property Name)	Description	Default	Release Deprecated
Promotion Accept Bundle Create/ Update Permission Required (opswise.promotion.accept_bundle.create_u pdate_permission.required)	Specification (true or false) for whether or not the <code>ops_promotion_admin</code> role additionally requires Create (or Update) <a href="#">permission</a> , on the target Universal Controller, for any record type being promoted.  Any user without the <code>ops_promotion_admin</code> role always will require Create (or Update) permission, regardless of this property.	true	6.9.0.0
Promotion Read Permission Required (opswise.promotion.read_permission.require d)	Specification (true or false) for whether or not the <code>ops_promotion_admin</code> role additionally requires Read <a href="#">permission</a> , on the source Universal Controller, for any record type being promoted.  Any user without the <code>ops_promotion_admin</code> role always will require Read permission, regardless of this property.  <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>If false, any user with the <code>ops_promotion_admin</code> role automatically is granted Read permission for any record that can be promoted.</p> </div>	true	6.9.0.0
Promotion Strict Mode (uc.promotion.strict_mode)	Specification for whether or not to fail a promotion if a record being promoted <b>matches both</b> of the following target records conditions <b>simultaneously</b> : <ul style="list-style-type: none"> <li>• Record with same name / different sysid</li> <li>• Record with different name / same sysid</li> </ul> If the record being promoted matches a target record by <b>only one of the above conditions</b> , the Controller will allow the promotion to continue. Depending on which condition you match, you will see the following result. <ul style="list-style-type: none"> <li>• If the record being promoted matches a target record with same name / different sysid, the id mismatch will be logged in this format:                             <div style="border: 1px solid gray; padding: 10px; margin-top: 10px;"> <pre>Promoted {type} with name "name" and id 3c7a1b3c422049cab796e98fb5420ff3 has a different id than the original "name" with id 7b91616ff0dc431b9ae011f6e795806e.</pre> </div> </li> <li>• If the record being promoted matches a target record with different name / same sysid, it is considered a name update and the name mismatch will not be logged.</li> </ul> Valid values are <b>0</b> (allow) and <b>1</b> (fail).	1	7.4.0.0

Name (Property Name)	Description	Default	Release Deprecated
Strict Business Service Membership Read Constraints (opswise.read_constraints.bsvc_membership_strict)	<p>Specification (true or false) for whether the Controller will enforce explicit Read <a href="#">permission</a> for the following record types:</p> <ul style="list-style-type: none"> <li>• Agent</li> <li>• Agent Cluster</li> <li>• Calendar</li> <li>• Credential</li> <li>• Database Connection</li> <li>• Email Connection</li> <li>• Email Template</li> <li>• OMS Server</li> <li>• PeopleSoft Connection</li> <li>• SAP Connection</li> <li>• SNMP Manager</li> <li>• Trigger Forecasts</li> <li>• Virtual Resource</li> </ul> <p>If the property is false, users have implicit Read permission for these record types.</p> <p>If the property is true, users can view these record types only if they are granted Read permission explicitly via an appropriate <a href="#">role or permission</a>.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>For those record types, above, that have a corresponding permission type, when you create a permission, the Read operation checkbox automatically will be checked if the property is false.</p> </div>	true	6.9.0.0
Strict Connection Execute Constraints (opswise.connection.execute_constraints_strict)	<p>Specification (true or false) for whether Universal Controller will enforce Execute constraints for connections (Database Connections, Email Connections, SAP Connections, and SNMP Managers) during task instance execution.</p> <p>If Strict Connection Execute Constraints is false, only Read constraints for connections are enforced based on the configuration of the <a href="#">Strict Business Service Membership Read Constraints</a> Universal Controller system property.</p> <p>If Strict Connection Execute Constraints is true, the Execution User for any task instance executing with a connection must have Execute permission for that connection; otherwise, the task instance will transition into a Start Failure status.</p>	true	6.9.0.0
Variable Security Enabled (opswise.security.variable.enabled)	Specification (true or false) for enabling enhanced Global Variable security.	true	6.9.0.0
Virtual Resource Security Enabled (opswise.security.virtual_resource.enabled)	Specification (true or false) for enabling enhanced Virtual Resource security.	true	6.9.0.0

## 16.4 Command Line Interface (CLI) Properties

A sample Command Line Interface (CLI) configuration file, `cmdtools.props`, is provided for your use to pass CLI [Global parameters](#) to a CLI function.

The file is created during installation of Universal Agent if the Command Line Interface (CLI) has been selected to be installed.

```
network.provider=  
network.omsservers=  
network.omsnft=  
network.transports=  
network.core=HUB01  
security.userid=  
security.password=  
config.timeout=
```

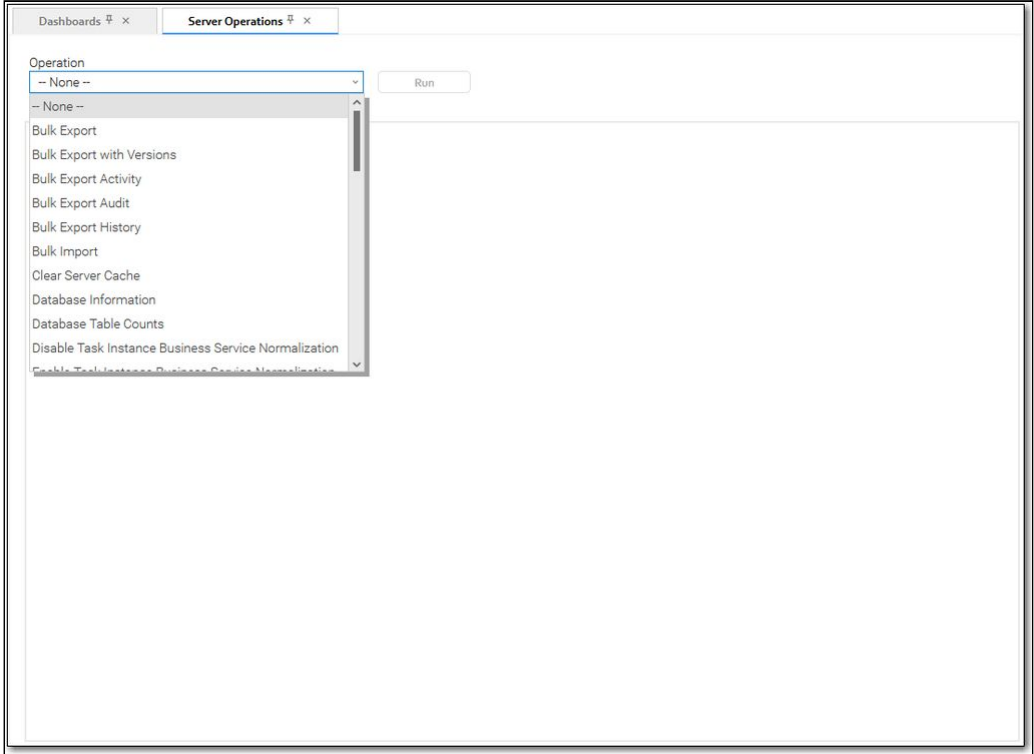
However, you can create a configuration file with any name; it must exist in the directory from where you are issuing the functions (see [Command Line Interface \(CLI\)](#)).

# 17 Server Operations

## 17.1 Overview

Universal Controller provides a set of server operations that help you maintain and administer your Controller installation. Many of the operations, as noted, should be run only by Technical Support or upon request by Technical Support.

## 17.2 Running a Server Operation

<p><b>Step 1</b></p>	<p>From the <a href="#">Administration</a> navigation pane, select <b>Configuration &gt; Server Operations</b>. The Server Operations list displays.</p>  <p>The screenshot shows the 'Server Operations' page in a web browser. At the top, there are two tabs: 'Dashboards' and 'Server Operations'. Below the tabs, there is a dropdown menu labeled 'Operation' with a 'Run' button to its right. The dropdown menu is open, showing a list of operations: '-- None --', Bulk Export, Bulk Export with Versions, Bulk Export Activity, Bulk Export Audit, Bulk Export History, Bulk Import, Clear Server Cache, Database Information, Database Table Counts, and Disable Task Instance Business Service Normalization. The 'Run' button is a simple rectangular button with the text 'Run'.</p>
<p><b>Step 2</b></p>	<p>Select an operation from the drop-down list and click <b>Run</b>.</p>

## 17.3 Server Operation Completion

When a server operation has been run and completed, the Controller issues an INFO-level log message.

For example:

```
2018-03-31-09:24:58:957 -0400 INFO [http-8080-exec-4] Running Server Operation: Bulk Export
```

```
2018-03-31-09:25:12:357 -0400 INFO [http-8080-exec-4] Server Operation completed: Bulk Export in 1 Minute 37 Seconds
```

## 17.4 Server Operation Status

The status for a completed Server Operation is either Success or Failed. The [Audit Status](#) field for Server Operations can have one of the following values: Invoked, Failed, or Success.

All Server Operations can fail if the user invoking the Server Operation does not have sufficient permission or if the Server Operation is limited to one execution per node and it is already running.

Most Server Operations will complete successfully; however, if errors occur executing the Server Operation, the [Audit Status](#) field is set to Failed, and error messages may be added to the Additional Information field.

The Server Operation duration message will be added to the [Audit](#) Additional Information field regardless of the Server Operation status. For example:

```
Server Operation 'LDAP Refresh' completed in 0 Seconds at 2018-06-11 12:46:01 -0400
```

## 17.5 Server Operation Timeout

For potentially long running server operations, such as Bulk Import and Bulk Export, we set a request timeout of 30 minutes.

However, some browsers may timeout earlier, regardless. In the case where a server operation has timed out, you will see an error similar to the following in the [Console](#):

```
"No response from 'Bulk Import' server operation; check server log for details."
```

In the case of a request timeout, the server operation will continue to run on the server. You will have to confirm completion of the server operation from either the server log, [uc.log](#), or from the [Audits](#) list.



View the log for the start and completion of the server operation, as well as any warnings/errors logged in between.

```
2018-03-31-09:24:58:957 -0400 INFO [http-bio-8080-exec-4] Running Server Operation: Bulk Import
...
2018-03-31-09:25:12:357 -0400 INFO [http-bio-8080-exec-4] Server Operation completed: Bulk Import in 11 Minutes 57 Seconds
```

Alternatively, you can view the server operation audit record; however, the log usually provides the most detailed information.

## 17.6 Server Operations Descriptions

The following table describes and, where appropriate, provides links for each server operation.

Script	Description and Links
Bulk Export	Exports all current record definitions, without versions, when migrating data to a new Universal Controller deployment.
Bulk Export Activity	<p>Exports all current Activity data from multiple <a href="#">Universal Controller database tables</a>.</p> <div style="border: 1px solid orange; padding: 5px; margin: 10px 0;"> <p><b>Note</b></p> <p>In order to run this server operation, the <a href="#">Bulk Export Activity Permitted</a> Universal Controller system property must be set to true.</p> </div> <p>If you choose to run this server operation, the following confirmation pop-up displays:</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p><b>Confirm</b> <span style="float: right;">×</span></p> <p> <i>"Bulk Export Activity" can run exceptionally long and increase server and database load.</i></p> <p>Run the "Bulk Export Activity" operation?</p> <p style="text-align: center;"> <input type="button" value="Run"/> <input type="button" value="Cancel"/> </p> </div>
Bulk Export Audit	Exports all current <a href="#">Audit</a> records when migrating data to a new Universal Controller deployment.
Bulk Export History	<p>Exports all current <a href="#">History</a> records when migrating data to a new Universal Controller deployment.</p> <p>If you choose to run this server operation, the following confirmation pop-up displays:</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p><b>Confirm</b> <span style="float: right;">×</span></p> <p> <i>"Bulk Export History" can run exceptionally long and increase server and database load.</i></p> <p>Run the "Bulk Export History" operation?</p> <p style="text-align: center;"> <input type="button" value="Run"/> <input type="button" value="Cancel"/> </p> </div>
Bulk Export with Versions	Exports all current records along with older (non-current) versions of record definitions when migrating data to updated software.
Bulk Import	Imports all data from an exported file when migrating data to updated software.
Clear Server Cache	Clears the internal server cache. You can use this operation if you are experiencing unexpected behavior with the Controller system. For example, Technical Support may ask you to first run this operation to clear the server cache, then clear your browser cache.

Script	Description and Links
Database Information	<p>Displays the following information for the Controller database:</p> <ul style="list-style-type: none"> <li>• Type: MYSQL</li> <li>• Database Name: db_name</li> <li>• Database Product Name: MySQL</li> <li>• Database Product Version: 8.0.11</li> <li>• Driver Name: MySQL Connector/J</li> <li>• Driver Version: mysql-connector-java-8.0.12 (Revision: 24766725dc6e017025532146d94c6e6c488fb8f1)</li> <li>• Configured JDBC URL: jdbc:mysql://hostname:port/</li> <li>• Adjusted JDBC URL: jdbc:mysql://hostname:port/db_name?useUnicode=true&amp;serverTimezone=US/Eastern&amp;socketTimeout=1800000</li> <li>• Connection Pool: Server (0/3)</li> <li>• Connection Pool: Reserved (0/3)</li> <li>• Connection Pool: Client (0/5)</li> </ul>
Database Table Counts	<p>Displays the following information for Universal Controller database tables:</p> <ul style="list-style-type: none"> <li>• Largest table</li> <li>• Number of tables</li> <li>• Number of rows</li> <li>• Number of rows in each table</li> </ul> <p>See <a href="#">Server Operations#Universal Controller Database Tables</a>, below, for a description of all tables.</p>
Disable Task Instance Business Service Normalization	<p>Disables normalization of Business Service membership for all:</p> <ul style="list-style-type: none"> <li>• New Task Instance and History records.</li> <li>• Existing Task Instance and History records if it is still in progress.</li> </ul> <p>All previously normalized Business Service membership records will not be removed until they qualify for Activity or History purge.</p> <p>Also, the <a href="#">Task Instance Normalize Business Service Membership</a> property will be set to Disabled.</p>
Enable Task Instance Business Service Normalization	<p>Commence normalization of Business Service membership for all existing Task Instance and History records, and begin normalizing Business Service membership for all new Task Instance and History records.</p> <ul style="list-style-type: none"> <li>• Until all History and Task Instance Business Service membership normalization has completed for existing Task Instance and History records, the <a href="#">Task Instance Normalize Business Service Membership</a> Universal Controller system property will be set to Enabled/Normalizing.</li> <li>• When all History and Task Instance Business Service membership normalization has completed for existing Task Instance and History records, the <a href="#">Task Instance Normalize Business Service Membership</a> property will be set to Enabled/Normalized.</li> </ul> <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>When deciding on enabling Business Service normalization, it should be noted that there is trade-off between the query performance on Task Instance/History Lists and the added insertion of normalization data at Task Instance/History record creation time.</p> <p>If the Controller is restarted and the <a href="#">Task Instance Normalize Business Service Membership</a> property is Enabled/Normalizing, the Controller will resume normalization of Business Service membership for all existing Task Instance and History records.</p> </div>
Generate Server UUIDs Cache	<p>For use only by Technical Support personnel or when you are requested to run it by Technical Support.</p>
Health Check	<p>Displays information about the current instance of the Controller.</p>

Script	Description and Links
Inspect Events	For use only by Technical Support personnel or when you are requested to run it by Technical Support.
Inspect Universal Events	Limits the number of events displayed by the Inspect Events server operation. The events will display with the latest events first; that is, ordered by created time descending. Default is 1000.
Inspect Output Message Queue	For use only by Technical Support personnel or when you are requested to run it by Technical Support.
Inspect Subscriptions	For use only by Technical Support personnel or when you are requested to run it by Technical Support.
Inspect Timers	For use only by Technical Support personnel or when you are requested to run it by Technical Support.
LDAP Refresh	If LDAP is configured for this installation, it refreshes every 24 hours. This server operation forces a refresh. The refresh writes all Controller log entries to the user interface as well as to the Controller log, and the response will not be returned until the process completes. If you estimate the refresh could take a considerable amount of time, we recommend you use <a href="#">Server Operations#LDAP Refresh (Asynchronous)</a> .
LDAP Refresh (Asynchronous)	If LDAP is configured for this installation, it refreshes every 24 hours. This server operation forces a refresh. The refresh is performed in the background and sends Controller log entries to the Controller log.

Script	Description and Links
--------	-----------------------

List/Download Logs

Lists (and optionally lets you download) any existing UC log files for the Controller node that this operation is executed on.

The list identifies the name, last modification date, size of each log file, and - when you hover over the log file entry on the list - an icon that lets you download that file.

Dashboards x
Server Operations x

Operation

List/Download Logs


Run

<input type="checkbox"/>	Name	Date	Size (KB)	
<input type="checkbox"/>	uc.log	2022-11-03 13:05:05 -0400	3,627	
<input type="checkbox"/>	uc.d20221102.t235955.log	2022-11-02 23:59:55 -0400	4,757	
<input type="checkbox"/>	uc.d20221101.t235956.log	2022-11-01 23:59:56 -0400	1,546	
<input type="checkbox"/>	uc.d20221101.t164354.log	2022-11-01 16:43:54 -0400	587	

4 Log Files

The icons at the bottom of the list let you perform the following:

- Download selected log files.
- Select all log files.

Script	Description and Links
	<ul style="list-style-type: none"> <li>Deselect all log files.</li> </ul> (You also can select / deselect all log files by clicking the Name checkbox at the top of the list.)
Load Demonstration Definitions	Loads base demonstration data into your database (for example: workflows, tasks, triggers).
Memory Usage	Displays a summary of Controller memory usage.
Overdue Timers Delete	Deletes any overdue timers, as listed by the <a href="#">Server Operations#Overdue Timers List</a> operation.
Overdue Timers List	Lists any timers that are <b>overdue</b> (normally, no timers should be overdue).
Pause Cluster Node	Pauses the Controller, which prevents it from processing tasks and events. If an event or task is already running when you run this operation, the event or task will complete. The Controller remains in a paused state until you run the <a href="#">Server Operations#Resume Cluster Node</a> operation.
Purge All Non-Default Users And Groups	<p>Purges all non-default <a href="#">Users and Groups</a> and their associated data. There is one default User: Administrator (ops.admin). There are two default Groups: Administrator Group and Everything Group.</p> <p>This server operation will also clear the following fields:</p> <ul style="list-style-type: none"> <li>Manager field for the Administrator user if it references a non-default user.</li> <li>Manager field for the Administrator Group and/or Everything Group if it references a non-default user.</li> <li>Parent field for the Administrator Group and/or Everything Group if it references a non-default group.</li> </ul> <p>The following is recommended before running this server operation:</p> <ul style="list-style-type: none"> <li>Disable any triggers that are currently enabled by a non-default user.</li> <li>Unassign the Execution User for any triggers that are currently assigned a non-default user as the Execution User.</li> <li>Complete any active task instances that are currently assigned a non-default user as the Execution User.</li> </ul> <div style="border: 2px solid orange; padding: 10px; margin: 10px 0;"> <p><b>Note</b></p> <p>To run this server operation, the <a href="#">Purge All Non-Default Users And Groups Permitted</a> Universal Controller System Property must be set to true.</p> </div> <p>If you choose to run this server operation, the following confirmation pop-up displays:</p> <div style="border: 1px solid gray; padding: 10px; margin: 10px 0;"> <p><b>Confirm</b> <span style="float: right;">×</span></p> <p> <i>"Purge All Non-Default Users And Groups" is not intended for a live production environment.</i></p> <p>Run the "Purge All Non-Default Users And Groups" operation?</p> <p style="text-align: center;"> <input type="button" value="Run"/> <input type="button" value="Cancel"/> </p> </div>

Script	Description and Links
Purge History	<p>Purges all records from the <a href="#">History table</a> (ops_history).</p> <p>Any time a task instance goes into an end status (Cancelled, Failed, Skipped, Finished, Success), a copy of it is written to the History table. You can view your History table by selecting <b>Automation Center &gt; Task Instances &gt; History</b> from the navigation pane.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>If you do not need to keep or back up your task instance history, we recommend that you run this operation periodically; otherwise, make sure you schedule a routine <a href="#">Data Backup/Purge</a> for history by selecting <b>Administration &gt; Data Backup/Purge</b> from the navigation pane. Executing a Data Backup/Purge of an extremely large History table can seriously degrade Controller system performance.</p> </div>
Purge Instances	<p>Purges everything in the <a href="#">All Task Instances table</a> (ops_exec), which contains all system activity, including task instances in any status (including end statuses). Records in the <a href="#">All Task Instances table</a> (ops_exec) remain there until they are purged.</p> <div style="border: 1px solid red; padding: 10px; margin-top: 10px;"> <p><b>Warning</b></p> <p>Running this operation will purge any live data; that is, task instances that have not completed.</p> </div>
Purge Logs and Cache	Sends a request to all active Agents to purge their logs and cache.
Purge Versions	Purges versions of records in excess of the maximum specified by the <a href="#">System Default Maximum Versions</a> Universal Controller system property.
Refresh System Default List Layouts	<p>For Controller upgrades only; resets system defaults list layouts.</p> <p>You may be asked to run this server operation by Technical Support.</p>
Reset All Agent Cluster Task Counts	Resets the current number of tasks currently being run by all Agent clusters to 0 (see <a href="#">Resetting the Current Task Count</a> ).
Reset All Agent Task Counts	Resets the current number of tasks currently being run by all Agents to 0 (see <a href="#">Resetting the Current Task Count</a> ).
Restart Cluster Node	<p>Stops and restarts the Controller within the running Tomcat server. The Controller is effectively shut down and started up without stopping and starting Tomcat.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note:</b></p> <p>Restart Cluster Node will cause a failover to occur if it is executed on the Active node while another node is running as Passive.</p> </div>
Restore System Default List Layouts	Restores all lists to their default layouts.

Script	Description and Links
Resume Cluster Node	Resumes the Controller after it has been paused using the <a href="#">Server Operations#Pause Cluster Node</a> operation, or paused by the <a href="#">Start Server Paused</a> Universal Controller property on startup.
Roll Log	Renames the existing log to a timestamped log and opens a new log file.
Run Garbage Collection	Runs the "garbage collector." The gc method suggests that the Java Virtual Machine expend effort toward recycling unused objects in order to make the memory they currently occupy available for quick re-use. When control returns from the method call, the Java Virtual Machine has made a best effort to reclaim space from all discarded objects.
Server Information	Displays the following categories of information about the Universal Controller server: <ul style="list-style-type: none"> <li>• Node</li> <li>• License</li> <li>• Server Deployment</li> <li>• Database Information</li> <li>• Memory Information</li> </ul>
System Properties	Displays all properties of the operating system on which the Controller is running.  You may be asked to run this server operation by Technical Support.
Temporary Property Change	Allows for the temporary setting of specific Universal Controller properties to be used for diagnosing problems. This operation and setting of properties should be performed only under the guidance of Stonebranch support.
Thread List	Captures information about internal Controller system processes.  You may be asked to run this server operation by Technical Support.
Thread List by CPU	Captures information about internal Controller system processes.  You may be asked to run this server operation by Technical Support.
Thread Stack Trace	Captures information about internal Controller system processes.  You may be asked to run this server operation by Technical Support.

## 17.7 Universal Controller Database Tables

The following table identifies and describes all Universal Controller database tables, which are listed if you run the [Server Operations#Database Table Counts](#) server operation, above.

*The tables are in alphabetical order according to **Table Name**.*

See [Reportable Tables](#) for a list of these database tables that are available for creating [Report Details](#).

Table	Table Name	Description
Abort Actions	ops_abort_action	Contains details about <a href="#">Abort actions</a> .
Abort Actions Versions	ops_abort_action_v	Contains details about <a href="#">previous versions</a> of <a href="#">Abort actions</a> . New versions of Abort Action records are created when a task record is updated.
All Agents	ops_agent	Displays a list of <a href="#">Agents Overview</a> .

Table	Table Name	Description
All Agent Clusters	ops_agent_cluster	Contains details about <a href="#">Agent Clusters</a> .
All Agent Clusters Versions	ops_agent_cluster_v	Contains details about <a href="#">previous versions</a> of <a href="#">Agent Clusters</a> .
All Agents Mapping	ops_agent_mapping	Shows all the agents connected to one or more <a href="#">Promotion Targets</a> (as retrieved using the <a href="#">Refresh Target Agents</a> button).
Linux/Unix Agents Mapping	ops_agent_mapping_unix	Shows the mapping specifications between local <a href="#">Linux/Unix agents</a> and Linux/Unix agents on a <a href="#">Promotion Target</a> (as retrieved using the <a href="#">Refresh Target Agents</a> button).
Windows Agents Mapping	ops_agent_mapping_windows	Shows the mapping specifications between local Windows agents and Windows agents on a <a href="#">Promotion Target</a> (as retrieved using the <a href="#">Refresh Target Agents</a> button).
z/OS Agents Mapping	ops_agent_mapping_zos	Shows the mapping specifications between local z/OS agents and z/OS agents on a <a href="#">Promotion Target</a> (as retrieved using the <a href="#">Refresh Target Agents</a> button).
Applications	ops_application	Shows a list of <a href="#">Application Resources</a> .
Applications Versions	ops_application_v	Contains details about <a href="#">previous versions</a> of <a href="#">Application resources</a> .
Audits	ops_audit	Contains details of events being written to the <a href="#">Audit history</a> .
Backups	ops_backup	Contains <a href="#">Backup and Purge</a> records.
Bundles	ops_bundle	Contains all <a href="#">Bundles</a> records.
Bundles and Agent Clusters	ops_bundle_agent_cluster_join	Shows relationship information between <a href="#">Bundles</a> and <a href="#">Agent Clusters</a> ; that is, which agent clusters belong to which bundles.
Bundles and Applications	ops_bundle_application_join	Shows relationship information between <a href="#">Bundles</a> and <a href="#">Application resources</a> ; that is, which Application resources belong to which bundles.
Bundles and Calendars	ops_bundle_calendar_join	Contains relationship information between <a href="#">Bundles</a> and <a href="#">Calendars</a> ; that is, which Calendars belong to which Bundles.
Bundles and Credentials	ops_bundle_credentials_join	Contains relationship information between <a href="#">Bundles</a> and <a href="#">Credentials</a> ; that is, which Credential records belong to which bundles.
Bundles and Custom Days	ops_bundle_custom_day_join	Contains relationship information between <a href="#">Custom Days</a> and <a href="#">Bundles</a> ; that is, which Custom Days belong to which Bundles.
Bundles and Database Connections	ops_bundle_db_cntn_join	Contains information about the relationship between <a href="#">Bundles</a> and <a href="#">Database Connections</a> ; that is, which Database Connections belong to which Bundles.
Bundles and Email Connections	ops_bundle_email_cntn_join	Contains information about the relationship between <a href="#">Bundles</a> and <a href="#">Email Connections</a> ; that is, which Email Connections belong to which Bundles.
Bundles and Email Templates	ops_bundle_email_tmplt_join	Contains relationship information between <a href="#">Bundles</a> and <a href="#">Email templates</a> ; that is, which Email Templates belong to which Bundles.

Table	Table Name	Description
Bundles and Business Services	ops_bundle_generic_group_join	Contains relationship information between <a href="#">Bundles</a> and <a href="#">Business Services</a> ; that is, which Business Services belong to which Bundles.
Bundles and PeopleSoft Connections	ops_bundle_ps_cntn_join	Contains relationship information between <a href="#">Bundles</a> and <a href="#">PeopleSoft Connection</a> ; that is, which PeopleSoft Connection records are in which Bundles.
Bundles and Virtual Resources	ops_bundle_resource_join	Contains relationship information between <a href="#">Bundles</a> and <a href="#">Virtual Resources</a> ; that is, which Virtual Resources belong to which Bundles.
Bundles and SAP Connections	ops_bundle_sap_cntn_join	Contains relationship information between <a href="#">Bundles</a> and <a href="#">SAP Connection</a> ; that is, which SAP Connection records are in which Bundles.
Bundles and Scripts	ops_bundle_script_join	Contains relationship information between <a href="#">Bundles</a> and <a href="#">Script</a> ; that is, which Scripts belong to which Bundles.
Bundles and SNMP Managers	ops_bundle_snmp_cntn_join	Contains relationship information between <a href="#">Bundles</a> and <a href="#">SNMP Manager</a> ; that is, which SNMP Managers belong to which Bundles.
Promotion Targets	ops_bundle_target	Contains details about <a href="#">Promotion Target</a> records.
Bundles and Tasks	ops_bundle_task_join	Contains relationship information between <a href="#">Bundles</a> and <a href="#">Tasks</a> ; that is, which Tasks are in which Bundles.
Bundles and Triggers	ops_bundle_trigger_join	Contains relationship information between <a href="#">Bundles</a> and <a href="#">Triggers Overview</a> ; that is, which Triggers are in which Bundles.
Bundles and Variables	ops_bundle_variable_join	Contains relationship information between <a href="#">Bundles</a> and <a href="#">Global variables</a> ; that is, which Global variables belong to which Bundles.
Calendar Custom Days	ops_cal_cust_join	Contains details about which <a href="#">Custom Days</a> are associated with which <a href="#">Calendar records</a> .
Calendar Custom Days Versions	ops_cal_cust_join_v	Contains <a href="#">previous versions</a> of the association between <a href="#">Custom Days</a> and <a href="#">Calendar records</a> .
Calendars	ops_calendar	Contains details about <a href="#">Calendar records</a> .
Calendars Versions	ops_calendar_v	Contains <a href="#">previous versions</a> of <a href="#">Calendar records</a> .
Chart Colors	ops_chart_color	Contains details about colors used in <a href="#">Chart reports</a> .
Cluster Lock	ops_cluster_lock	(For internal use only.)
Cluster Nodes	ops_cluster_node	Provides details about <a href="#">cluster nodes</a> .
Cluster Nodes Notifications	ops_cluster_notification	Contains <a href="#">Email and SNMP notification</a> records associated with the <a href="#">cluster node</a> .
Command	ops_command	(For internal use only.)
Command Response	ops_command_response	(For internal use only.)
Properties	ops_config	Contains <a href="#">Universal Controller System Properties</a> .

Table	Table Name	Description
Connector Notifications	ops_connector_notification	Contains Email Notification and SNMP Notification data associated with <a href="#">Agents</a> and <a href="#">OMS Servers</a> .
Counter	ops_count	(For internal use only.)
Credentials	ops_credentials	<a href="#">Login credentials</a> used by the Controller to access remote machines.
Credentials Versions	ops_credentials_v	Contains <a href="#">previous versions</a> of <a href="#">Credentials</a> records.
Custom Days	ops_custom_day	Contains details about defined <a href="#">Custom Days</a> .
Custom Days Versions	ops_custom_day_v	Contains <a href="#">previous versions</a> of <a href="#">Custom Days</a> records.
Dashboards	ops_dashboard	Contains details about <a href="#">Dashboard Details</a> .
Dashboards Portlets	ops_dashboard_portlet	Contains details about the content ( <a href="#">Widgets</a> ) on the <a href="#">Dashboard Details</a> .
Database Connections	ops_database_connection	Contains details about [Database Connections defined in the Controller database.
Database Connections Versions	ops_database_connection_v	Contains <a href="#">previous versions</a> of [Database Connections records.
Email Notifications	ops_email_cluster_notification	Contains Email Notification records associated with <a href="#">Cluster Nodes</a> .
Email Notifications	ops_email_conn_notification	Contains Email Notification-specific data associated with <a href="#">Agents</a> and <a href="#">OMS Servers</a> .
Email Connections	ops_email_connection	Contains details about <a href="#">Email Connections</a> resources.
Email Connections Versions	ops_email_connection_v	Contains <a href="#">previous versions</a> of <a href="#">Email Connections</a> records.
Email Notifications	ops_email_notification	Contains details about <a href="#">Email Notifications</a> associated with <a href="#">tasks</a> .
Email Notifications Versions	ops_email_notification_v	Contains <a href="#">previous versions</a> of <a href="#">Email Notifications</a> associated with <a href="#">tasks</a> . Note that a new version is created only when the task is updated.
Email Templates	ops_email_template	Contains details about <a href="#">Email templates</a> .
Email Templates Versions	ops_email_template_v	Contains <a href="#">previous versions</a> of <a href="#">Email template</a> records.
Event Email	ops_event_email	(For internal use only.)
Event Exec Defined	ops_event_exec_defined	(For internal use only.)
Event Exec Resource Order Filled	ops_event_exec_ordfill	(For internal use only.)
Event Exec Exclusive Order Filled	ops_event_exec_ordfill_ex	(For internal use only.)
Event Exec Propagate State	ops_event_exec_prop_state	(For internal use only.)
Event Exec Skip Child	ops_event_exec_skip_child	(For internal use only.)
Event Exec Start	ops_event_exec_start	(For internal use only.)
Event Exclusive	ops_event_exclusive	(For internal use only.)

Table	Table Name	Description
Event Resource	ops_event_resource	(For internal use only.)
Event SNMP	ops_event_snmp	(For internal use only.)
Event SQL	ops_event_sql	(For internal use only.)
Event Trigger	ops_event_trigger	(For internal use only.)
Event Trigger Component	ops_event_trigger_comp	(For internal use only.)
Event UAC	ops_event_uac	(For internal use only.)
Event UAC Job Abend	ops_event_uac_jobabend	(For internal use only.)
Event UAC Job Complete	ops_event_uac_jobcomp	(For internal use only.)
Event UAC Job End	ops_event_uac_jobend	(For internal use only.)
Event UAC Job Log	ops_event_uac_joblog	(For internal use only.)
Event UAC Job Launch	ops_event_uac_joblaunch	(For internal use only.)
Event UAC Job Start	ops_event_uac_jobstart	(For internal use only.)
Event UAC Job Restart Confirmation	ops_event_uac_rstrt_conf	(For internal use only.)
Event UAC Step End	ops_event_uac_stepend	(For internal use only.)
Exclusive Requests	ops_exclusive_order	Contains any outstanding requests by a task instance to run <a href="#">mutually exclusively</a> .
<a href="#">All Task Instances</a>	ops_exec	<a href="#">Task instance activity</a> (running tasks).
Application Control Task Instances	ops_exec_application_control	Contains details about <a href="#">Application Control task instances</a> .
Email Task Instances	ops_exec_email	Contains details about <a href="#">Email task instances</a> .
Email Monitor Task Instances	ops_exec_email_monitor	Contains details about <a href="#">Email Monitor task instances</a> .
Advanced Criteria	ops_exec_email_criteria	Contains details about Email Monitor task instances <a href="#">Advanced Criteria</a> .
Agent File Monitor Instances	ops_exec_file_monitor	Contains details about <a href="#">Agent File Monitor task instances</a> .
File Transfer Task Instances	ops_exec_ftp	Contains details about <a href="#">File Transfer task instances</a> .
Remote File Monitor Instances	ops_exec_ftp_file_monitor	Contains details about <a href="#">Remote File Monitor task instances</a> .
Universal Command Task Instances	ops_exec_indesca	Contains details about <a href="#">Universal Command task instances</a> .
License Instance History	ops_exec_license_history	Contains statistics relating to the number of task instance executions.
Manual Task Instances	ops_exec_manual	Contains details about <a href="#">Manual task instances</a> .
Task Monitor Instances	ops_exec_monitor	Contains details about <a href="#">Task Monitor task instances</a> .

Table	Table Name	Description
Output	ops_exec_output	Contains any <a href="#">output</a> (such as STDOUT) attached to task instances.
PeopleSoft Task Instances	ops_exec_peoplesoft	Contains <a href="#">PeopleSoft task</a> instance records.
PeopleSoft Task Parameters	ops_exec_peoplesoft_rt_param	Contains Parameter records associated with <a href="#">PeopleSoft task instances</a> .
Recurring Task Instances	ops_exec_recurring	Contains details about <a href="#">Recurring task instances</a> .
Task Instances Run Criteria	ops_exec_run_criteria	Contains <a href="#">run criteria</a> information for task instances within a <a href="#">Workflow</a> .
SAP Task Instances	ops_exec_sap	Contains <a href="#">SAP task</a> instance records.
Timer Task Instances	ops_exec_sleep	Contains details about <a href="#">Timer task instances</a> .
SQL Task Instances	ops_exec_sql	Contains details about <a href="#">SQL task instances</a> .
Stored Procedure Task Instances	ops_exec_stored_proc	Contains details about <a href="#">Stored Procedure task instances</a> .
Stored Procedure Task Parameters	ops_exec_stored_proc_param	Contains <a href="#">Parameter</a> records associated with <a href="#">Stored Procedure task instances</a> .
System Monitor Task Instances	ops_exec_system_monitor	Contains <a href="#">System Monitor task</a> task instance records.
Task Instance Virtual Resources	ops_exec_to_resource	Contains relationship information between <a href="#">Virtual Resources</a> and task instances; that is, which task instances are assigned to which Virtual Resources.
Universal Task Instances	ops_exec_universal	Contains details about <a href="#">Universal Task instances</a> .
Linux/Unix Task Instances	ops_exec_unix	Contains details about <a href="#">Linux/Unix task instances</a> .
Variable Monitor Task Instances	ops_exec_variable_monitor	Contains <a href="#">Variable Monitor task</a> task instance records.
Windows Task Instances	ops_exec_windows	Contains details about <a href="#">Windows task instances</a> .
Workflow Task Instances	ops_exec_workflow	Contains details about <a href="#">Workflow task instances</a> .
Workflow Task Instance Dependencies	ops_exec_workflow_edge	Contains information about the <a href="#">conditions</a> specified between task instances within <a href="#">workflows</a> .
Workflow Task Instance Vertices	ops_exec_workflow_vertex	Contains relationship information between workflow instances and task instances; that is, which tasks are running in which <a href="#">workflows</a> .
z/OS Task Instances	ops_exec_zos	Contains details about <a href="#">z/OS task instances</a> .
Restart Confirmations	ops_exec_zos_confirm	Contains details about any <a href="#">restart confirmations</a> performed on <a href="#">z/OS tasks</a> .
Job Step Files Data	ops_exec_zos_files	Contains details about <a href="#">jobsteps</a> in a <a href="#">z/OS task</a> .
Restartable Job Steps	ops_exec_zos_jobsteps	Contains historical details about <a href="#">restartable job steps</a> in a <a href="#">z/OS task</a> .
Restartable Job Steps	ops_exec_zos_jobstepsui	Contains details about <a href="#">restartable job steps</a> in a <a href="#">z/OS task</a> .

Table	Table Name	Description
Restart Criteria	ops_exec_zos_rstrt_criteria	Contain information about z/OS task <a href="#">restart criteria</a> .
Step Conditions	ops_exec_zos_stepcond	Contains details about z/OS task instance <a href="#">step conditions</a> .
Externalizable	ops_externalizable	Contains an internal table for events.
Business Services	ops_generic_group	Contains details about <a href="#">Business Services</a> .
Business Services Versions	ops_generic_group_v	Contains <a href="#">previous versions</a> of <a href="#">Business Service</a> records.
Group Roles	ops_group_has_role	Contains relationship information between Universal Controller User <a href="#">Groups</a> and <a href="#">Roles</a> ; that is, which Groups have been assigned which Roles.
History	ops_history	Contains a <a href="#">history of task activity</a> .
LDAP	ops_ldap	Identifies where <a href="#">LDAP Settings</a> are stored.
Licenses	ops_license	Contains information about the Controller <a href="#">license</a> .
List Grid Filters	ops_list_grid_filter	Identifies where persistent filters are stored.
List Grid Pin Filters	ops_list_grid_pin_filter	Identifies where pinned filters are stored.
List Grid Preferences	ops_list_grid_pref	Contains information about <a href="#">list</a> layouts.
Local Custom Days	ops_local_custom_days	Contains details about <a href="#">Local Custom Days</a> .
Local Custom Days Versions	ops_local_custom_days_v	Contains <a href="#">previous versions</a> of <a href="#">Local Custom Days</a> .
Local Variables	ops_local_variable	Contains details about <a href="#">task and trigger variables</a> (also called local variables), entered into the Variables tab on a task or trigger record.
Local Variables Versions	ops_local_variable_v	Contains <a href="#">previous versions</a> of Local variables associated with tasks or triggers. (New version records are created only when a task or trigger is updated.)
Maps	ops_map	(For internal use only.)
Navigator	ops_nav_tree_pref	Contains <a href="#">Navigation Tree Configuration</a> data.
Notes	ops_note	Contains details about <a href="#">Notes</a> attached to Controller records.
Notes Versions	ops_note_v	Contains <a href="#">previous versions</a> of <a href="#">Notes</a> records.
All Actions	ops_notification	Contains details about all task actions: <a href="#">Abort Action</a> , <a href="#">Email Notifications</a> , <a href="#">Set Variable</a> , <a href="#">SNMP Notification</a> , and <a href="#">System Operation</a> .
All Actions Versions	ops_notification_v	Contains details about <a href="#">previous versions</a> of all task actions: <a href="#">Abort Action</a> , <a href="#">Email Notifications</a> , <a href="#">Set Variable</a> , <a href="#">SNMP Notification</a> , and <a href="#">System Operation</a> . New versions of Action records are created when a task record is updated.
OMS Servers	ops_oms_server	Provides details about <a href="#">OMS Servers</a> .
Output Messages	ops_output_msg	(For internal use only.)

Table	Table Name	Description
PeopleSoft Connections	ops_peoplesoft_connection	Contains <a href="#">PeopleSoft Connection</a> records.
PeopleSoft Connections Versions	ops_peoplesoft_connection_v	Contains <a href="#">previous versions</a> of <a href="#">PeopleSoft Connection</a> records.
Permissions	ops_permission	Contains details about <a href="#">Universal Controller Permissions</a> assigned to Universal Controller <a href="#">Users</a> and Universal Controller <a href="#">User Groups</a> .
Promotion History	ops_promotion_history	Contains a list of <a href="#">Bundles</a> that have been promoted into the current database.
Promotion History Items	ops_promotion_history_item	Contains a list of records that have been promoted into the current database. If a record has been promoted more than once, each version is listed separately.
Promotion Schedule	ops_promotion_schedule	Contains a list of <a href="#">Promotion Schedules</a> .
Reports	ops_report	Contains information about Controller <a href="#">Report Details</a> .
Outstanding Requests	ops_resource_order	Contains any outstanding requests for a <a href="#">Virtual Resource</a> by a task instance.
Currently In Use By	ops_resource_usage	Contains details about <a href="#">Virtual resource</a> usage, as displayed in the <a href="#">Currently In Use By</a> tab.
SAP Connections	ops_sap_connection	Contains <a href="#">SAP Connection</a> records.
SAP Connections Versions	ops_sap_connection_v	Contains <a href="#">previous versions</a> of <a href="#">SAP Connection</a> records.
Schemas	ops_schema	Contains version information about database schemas.
Scripts	ops_script	Contains <a href="#">Script</a> records.
Scripts Versions	ops_script_v	Contains <a href="#">previous versions</a> of <a href="#">Script</a> records.
Simulation	ops_simulation	Contains <a href="#">Simulation</a> records.
Simulation Output	ops_simulation_output	Contains <a href="#">Simulation</a> output records.
SNMP Notifications	ops_snmp_cluster_notification	Contains <a href="#">SNMP notifications</a> defined for <a href="#">Cluster Nodes</a> .
SNMP Notifications	ops_snmp_conn_notification	Contains SNMP Notification-specific data associated with <a href="#">Agents</a> and <a href="#">OMS Servers</a> .
SNMP Managers	ops_snmp_connection	Contains <a href="#">SNMP Manager</a> records.
SNMP Managers Versions	ops_snmp_connection_v	Contains <a href="#">previous versions</a> of <a href="#">SNMP Manager</a> records.
SNMP Notifications	ops_snmp_notification	Contains <a href="#">SNMP notifications</a> defined for <a href="#">Tasks</a> .
SNMP Notifications Versions	ops_snmp_notification_v	Contains <a href="#">previous versions</a> of <a href="#">SNMP notifications</a> defined for <a href="#">Tasks</a> . (Versions are created only when a task is updated.)
SQL Results Set	ops_sql_results	Contains output from <a href="#">SQL tasks</a> .
SQL Warnings Set	ops_sql_warnings	Contains <a href="#">warnings</a> returned by executed SQL statements.
Stored Procedure Parameters	ops_stored_proc_param	Contains <a href="#">Parameter</a> records associated with <a href="#">Stored Procedure tasks</a> .

Table	Table Name	Description
Stored Procedure Parameters Versions	ops_stored_proc_param_v	Contains <a href="#">previous versions</a> of <a href="#">Parameter</a> records associated with <a href="#">Stored Procedure tasks</a> . (Versions are created only when the task is updated.)
Subscription	ops_subscription	(For internal use only.)
System Operations	ops_system_operation	Contains details about <a href="#">System Operation actions</a> .
System Operations Versions	ops_system_operation_v	Contains details about <a href="#">previous versions</a> of <a href="#">System Operation actions</a> . (Versions of records are created only when a record is updated.)
All Tasks	ops_task	Contains details about <a href="#">tasks of every type</a> , along with associated Task Instance information.
Application Control Tasks	ops_task_application_control	Contains details about <a href="#">Application Control tasks</a> .
Application Control Task Versions	ops_task_application_control_v	Shows <a href="#">previous versions</a> of <a href="#">Application Control tasks</a> .
Email Tasks	ops_task_email	Contains details about <a href="#">Email tasks</a> .
Email Task Versions	ops_task_email_v	Contains <a href="#">previous versions</a> of <a href="#">Email task</a> records.
Email Monitor Tasks	ops_task_email_monitor	Contains details about <a href="#">Email Monitor tasks</a> .
Email Monitor Task Versions	ops_task_email_monitor_v	Contains <a href="#">previous versions</a> of <a href="#">Email Monitor task</a> records.
Advanced Criteria	ops_task_email_criteria	Contains details about Email Monitor task <a href="#">Advanced Criteria</a> .
Agent File Monitors	ops_task_file_monitor	Contains details about <a href="#">Agent File Monitor tasks</a> .
Agent File Monitor Task Versions	ops_task_file_monitor_v	Contains <a href="#">previous versions</a> of <a href="#">Agent File Monitor task</a> records.
File Transfer Tasks	ops_task_ftp	Contains details about <a href="#">File Transfer tasks</a> .
File Transfer Task Versions	ops_task_ftp_v	Contains <a href="#">previous versions</a> of <a href="#">File transfer task</a> records.
Remote File Monitors	ops_task_ftp_file_monitor	Contains details about <a href="#">Remote File Monitor tasks</a> .
Remote File Monitor Versions	ops_task_ftp_file_monitor_v	Contains <a href="#">previous versions</a> of <a href="#">Remote File Monitor task</a> records.
Universal Command Tasks	ops_task_indesca	Contains details about <a href="#">Universal Command tasks</a> .
Universal Command Task Versions	ops_task_indesca_v	Contains <a href="#">previous versions</a> of <a href="#">Universal Command task</a> records.
Manual Tasks	ops_task_manual	Contains details about <a href="#">Manual tasks</a> .
Manual Task Versions	ops_task_manual_v	Contains <a href="#">previous versions</a> of <a href="#">Manual task</a> records.
Task Monitors	ops_task_monitor	Contains details about <a href="#">Task Monitor tasks</a> .
Task Monitor Versions	ops_task_monitor_v	Contains <a href="#">previous versions</a> of <a href="#">Task Monitor task</a> records.
PeopleSoft Tasks	ops_task_peoplesoft	Contains <a href="#">PeopleSoft task</a> records.
PeopleSoft Parameters	ops_task_peoplesoft_rt_param	Contains Parameter records associated with <a href="#">PeopleSoft tasks</a> .

Table	Table Name	Description
PeopleSoft Parameters Versions	ops_task_peoplesoft_rt_param_v	Contains <a href="#">previous versions</a> of Parameter records associated with <a href="#">PeopleSoft tasks</a> . (Versions are created only when the task is updated.)
PeopleSoft Task Versions	ops_task_peoplesoft_v	Contains <a href="#">previous versions</a> of <a href="#">PeopleSoft task</a> records.
Recurring Tasks	ops_task_recurring	Contains <a href="#">Recurring task</a> records.
Recurring Task Versions	ops_task_recurring_v	Contains <a href="#">previous versions</a> of <a href="#">Recurring task</a> records.
Task Run Criteria	ops_task_run_criteria	Contains <a href="#">run criteria</a> information for tasks within <a href="#">Workflows</a> .
Task Run Criteria Versions	ops_task_run_criteria_v	Contains <a href="#">previous versions</a> of <a href="#">run criteria</a> information for tasks within <a href="#">Workflow</a> . (Versions are created only when the Workflow task is updated.)
SAP Tasks	ops_task_sap	Contains <a href="#">SAP task</a> records.
SAP Tasks Versions	ops_task_sap_v	Contains <a href="#">previous versions</a> of <a href="#">SAP task</a> records.
Timer Tasks	ops_task_sleep	Contains details about <a href="#">Timer tasks</a> .
Timer Task Versions	ops_task_sleep_v	Contains <a href="#">previous versions</a> of <a href="#">Timer tasks</a> records.
SQL Tasks	ops_task_sql	Contains details about <a href="#">SQL tasks</a> .
SQL Task Versions	ops_task_sql_v	Contains <a href="#">previous versions</a> of <a href="#">SQL tasks</a> records.
Mutually Exclusive	ops_task_to_exclusive	Contains relationship information between tasks and <a href="#">mutually exclusive</a> tasks; that is, which tasks are mutually exclusive with each other.
Mutually Exclusive Versions	ops_task_to_exclusive_v	Contains <a href="#">previous versions</a> of relationship information between tasks and <a href="#">mutually exclusive</a> tasks.
Stored Procedure Tasks	ops_task_stored_proc	Contains details about <a href="#">Stored Procedure tasks</a> .
Stored Procedure Tasks Versions	ops_task_stored_proc_v	Contains <a href="#">previous versions</a> of <a href="#">Stored Procedure tasks</a> records.
System Monitors	ops_task_system_monitor	Contains <a href="#">System Monitor task</a> records.
System Monitor Versions	ops_task_system_monitor_v	Contains <a href="#">previous versions</a> of <a href="#">System Monitor task</a> records.
Task Virtual Resources	ops_task_to_resource	Contains relationship information between <a href="#">Virtual Resources</a> and tasks; that is, which tasks are assigned to which Virtual Resources.
Task Virtual Resources Versions	ops_task_to_resource_v	Contains <a href="#">previous versions</a> of relationship information between <a href="#">Virtual Resources</a> and tasks.
Universal Tasks	ops_task_universal	Contains details about <a href="#">Universal tasks</a> .
Universal Task Versions	ops_task_universal_v	Contains <a href="#">previous versions</a> of <a href="#">Universal task</a> records.
Linux/Unix Tasks	ops_task_unix	Contains details about <a href="#">Linux/Unix tasks</a> .
Linux/Unix Task Versions	ops_task_unix_v	Contains <a href="#">previous versions</a> of <a href="#">Linux/Unix task</a> records.
All Tasks Versions	ops_task_v	Contains <a href="#">previous versions</a> of all task records.

Table	Table Name	Description
Variable Monitor Tasks	ops_task_variable_monitor	Contains details about <a href="#">Variable Monitor tasks</a> .
Variable Monitor Task Versions	ops_task_variable_monitor_v	Contains <a href="#">previous versions</a> of <a href="#">Variable Monitor task</a> records.
Windows Tasks	ops_task_windows	Contains details about <a href="#">Windows tasks</a> .
Windows Task Versions	ops_task_windows_v	Contains <a href="#">previous versions</a> of <a href="#">Windows task</a> records.
Workflow Tasks	ops_task_workflow	Contains details about <a href="#">Workflow tasks</a> .
Task Workflow Dependencies	ops_task_workflow_edge	Contains information about the <a href="#">conditions</a> specified between tasks in <a href="#">workflows</a> .
Workflow Task Edges	ops_task_workflow_edge_v	Contains <a href="#">previous versions</a> of information about the <a href="#">conditions</a> specified among tasks in <a href="#">workflows</a> . (New versions of records are created only when the Workflow task is updated.)
Workflow Task Versions	ops_task_workflow_v	Contains <a href="#">previous versions</a> of <a href="#">workflow</a> task records.
Workflow Tasks Vertices	ops_task_workflow_vertex	Contains relationship information between tasks and workflows; that is, which tasks are in which <a href="#">workflows</a> .
Workflow Tasks Vertices Versions	ops_task_workflow_vertex_v	Contains <a href="#">previous versions</a> of the relationship between tasks and workflows. (Versions are created only when the <a href="#">workflow</a> task is updated.)
z/OS Tasks	ops_task_zos	Contains details about <a href="#">z/OS tasks</a> .
Restart Criteria	ops_task_zos_rstrt_criteria	Contain information about z/OS task <a href="#">restart criteria</a> .
Restart Criteria	ops_task_zos_rstrt_criteria_v	Contains <a href="#">previous versions</a> of z/OS task <a href="#">restart criteria</a> .
Step Conditions	ops_task_zos_stepcond	Contains details about z/OS task <a href="#">step conditions</a>
Step Conditions	ops_task_zos_stepcond_v	Contains <a href="#">previous versions</a> of z/OS task <a href="#">step conditions</a>
z/OS Task Versions	ops_task_zos_v	Contains <a href="#">previous versions</a> of <a href="#">z/OS task</a> records.
Time Zones	ops_time_zone	Stores information on time zones.
Timer	ops_timer	(For internal use only.)
All Triggers	ops_trigger	Contains details about <a href="#">triggers of every type</a> .
Application Monitor Triggers	ops_trigger_appl_monitor	Contains details about <a href="#">Application Monitor triggers</a> .
Application Monitor Triggers Versions	ops_trigger_appl_monitor_v	Contains details about <a href="#">previous versions</a> of <a href="#">Application Monitor triggers</a> .
All Components	ops_trigger_component	Contains details about all <a href="#">Composite trigger</a> components.
Email Monitor Components	ops_trigger_component_em	Contains details about <a href="#">Email Monitor components</a> of Composite Triggers.
Email Monitor Components	ops_trigger_component_em_v	Contains details about <a href="#">previous versions</a> of <a href="#">Email Monitor components</a> of Composite Triggers.
File Monitor Components	ops_trigger_component_fm	Contains details about <a href="#">File Monitor components</a> of Composite Triggers.

Table	Table Name	Description
File Monitor Components	ops_trigger_component_fm_v	Contains details about <a href="#">previous versions</a> of <a href="#">File Monitor components</a> of Composite Triggers.
Time Components	ops_trigger_component_time	Contains details about <a href="#">Time components</a> of Composite Triggers.
Time Components	ops_trigger_component_time_v	Contains details about <a href="#">previous versions</a> of <a href="#">Time components</a> of Composite Triggers.
Variable Monitor Components	ops_trigger_component_vm	Contains details about <a href="#">Variable Monitor components</a> of Composite Triggers.
Variable Monitor Components	ops_trigger_component_vm_v	Contains details about <a href="#">previous versions</a> of <a href="#">Variable Monitor components</a> of Composite Triggers.
Task Monitor Components	ops_trigger_component_tm	Contains details about <a href="#">Task Monitor components</a> of Composite Triggers.
Task Monitor Components	ops_trigger_component_tm_v	Contains details about <a href="#">previous versions</a> of <a href="#">Task Monitor components</a> of Composite Triggers.
All Components	ops_trigger_component_v	Contains details about <a href="#">previous versions</a> of all <a href="#">Composite trigger components</a> .
Composite Triggers	ops_trigger_composite	Contains details about <a href="#">Composite trigger</a> records.
Composite Triggers	ops_trigger_composite_v	Contains details about <a href="#">previous versions</a> of <a href="#">Composite trigger</a> records.
Cron Triggers	ops_trigger_cron	Contains details about <a href="#">Cron trigger</a> records.
Cron Trigger Versions	ops_trigger_cron_v	Contains <a href="#">previous versions</a> of <a href="#">Cron trigger</a> records.
Email Monitor Triggers	ops_trigger_em	Contains details about <a href="#">Email Monitor trigger</a> records.
Email Monitor Trigger Versions	ops_trigger_em_v	Contains <a href="#">previous versions</a> of <a href="#">Email Monitor trigger</a> records.
File Monitor Triggers	ops_trigger_fm	Contains details about <a href="#">File Monitor triggers</a> .
File Monitor Triggers Versions	ops_trigger_fm_v	Contains <a href="#">previous versions</a> of <a href="#">File Monitor trigger</a> records.
Forecasts	ops_trigger_forecast	Contains details about <a href="#">trigger forecasts</a> .
Manual Triggers	ops_trigger_manual	Contains <a href="#">Manual trigger</a> records.
Manual Trigger Versions	ops_trigger_manual_v	Contains <a href="#">previous versions</a> of <a href="#">Manual trigger</a> records.
Temporary Triggers	ops_trigger_temp	Contains details about <a href="#">Temporary triggers</a> .
Temporary Triggers Versions	ops_trigger_temp_v	Contains <a href="#">previous versions</a> of <a href="#">Temporary trigger</a> records.
Time Triggers	ops_trigger_time	Contains details about <a href="#">Time triggers</a> .
Time Triggers Versions	ops_trigger_time_v	Contains <a href="#">previous versions</a> of <a href="#">Time trigger</a> records.
Task Monitor Triggers	ops_trigger_tm	Contains details about <a href="#">Task Monitor triggers</a> .
Task Monitor Triggers Versions	ops_trigger_tm_v	Contains <a href="#">previous versions</a> of <a href="#">Task Monitor trigger</a> records.
All Triggers Versions	ops_trigger_v	Contains <a href="#">previous versions</a> of <a href="#">Trigger</a> records.

Table	Table Name	Description
Variable Monitor Triggers	ops_trigger_vm	Contains details about <a href="#">Variable Monitor triggers</a> .
Variable Monitor Triggers Versions	ops_trigger_vm_v	Contains <a href="#">previous versions</a> of <a href="#">Variable Monitor trigger</a> records.
Linux/Unix Agents	ops_unix_agent	Contains details about <a href="#">Linux/Unix agent resources</a> .
Linux/Unix Agent Clusters	ops_unix_agent_cluster	Contains details about <a href="#">Linux/Unix agent clusters</a> .
Linux/Unix Agents In Cluster	ops_unix_agent_cluster_join	Shows relationship information between <a href="#">Unix agents</a> and <a href="#">Unix agent clusters</a> , that is, which agents belong to which clusters.
Linux/Unix Agents In Cluster Versions	ops_unix_agent_cluster_join_v	Shows <a href="#">previous versions</a> of relationship information between <a href="#">Unix agents</a> and <a href="#">Unix agent clusters</a> .
Linux/Unix Agent Clusters Versions	ops_unix_agent_cluster_v	Contains <a href="#">previous versions</a> of <a href="#">Linux/Unix cluster</a> records.
Universal Templates	ops_unv_tmplt	Contains details about Universal Templates.
Universal Template Fields	ops_unv_tmplt_field	Contains details about Universal Template Fields.
Universal Template Field Choice Values	ops_unv_tmplt_field_choice	Contains details about <a href="#">Universal Templates</a> . (Requires <a href="#">ops_admin</a> or <a href="#">ops_universal_template_admin</a> role.)
Users	ops_user	Contains details about <a href="#">User records</a> .
Group Members	ops_user_grmember	Contains relationship information between Universal Controller <a href="#">User Groups</a> and Universal Controller <a href="#">Users</a> ; that is, which Users belong to which Groups.
Groups	ops_user_group	Contains details about Universal Controller <a href="#">User Groups</a> .
User Roles	ops_user_has_role	Contains details about Users and <a href="#">Roles</a> , including which Users have which Roles.
User Preferences	ops_user_preference	Contains information about Universal Controller <a href="#">User Preferences</a> .
User Roles	ops_user_role	Contains information about available <a href="#">user roles</a> .
User Roles Contains	ops_user_role_contains	Contains information about roles that comprise parent roles <a href="#">user roles</a> .
User Tokens	ops_user_token	Contains information about <a href="#">user sessions</a> .
Variables	ops_variable	Contains details about <a href="#">Global variables</a> , entered by selecting Variables from the Navigation pane.
Set Variables	ops_variable_action	Contains details about <a href="#">Set Variable actions</a> .
Set Variables	ops_variable_action_v	Contains <a href="#">previous versions</a> of <a href="#">Set Variable</a> actions.
Variables Versions	ops_variable_v	Contains <a href="#">previous versions</a> of <a href="#">Global variables</a> .
Virtual Resources	ops_virtual_resource	Contains details about <a href="#">Virtual resource</a> records.
Virtual Resources Versions	ops_virtual_resource_v	Contains <a href="#">previous versions</a> of <a href="#">Virtual resources</a> .
Widgets	ops_widget	Contains details about all <a href="#">Widgets</a> .

Table	Table Name	Description
Widgets Activity	ops_widget_activity	Contains details about <a href="#">Activity Widgets</a> .
Widgets Report	ops_widget_report	Contains details about <a href="#">Report Widgets</a> .
Widgets System	ops_widget_system	Contains details about <a href="#">System Widgets</a> .
Windows Agents In Cluster	ops_win_agent_cluster_join	Shows relationship information between <a href="#">Windows agents</a> and <a href="#">Windows agent clusters</a> , that is, which agents belong to which clusters.
Windows Agents In Cluster Versions	ops_win_agent_cluster_join_v	Shows <a href="#">previous versions</a> of relationship information between <a href="#">Windows agents</a> and <a href="#">Windows agent clusters</a> .
Windows Agents	ops_windows_agent	Contains details about <a href="#">Windows agents</a> .
Windows Agent Clusters	ops_windows_agent_cluster	Contains details about <a href="#">Windows agent clusters</a> .
Windows Agent Clusters Versions	ops_windows_agent_cluster_v	Contains <a href="#">previous versions</a> of <a href="#">Windows Agent Cluster</a> records.
z/OS Agents	ops_zos_agent	Contains details about <a href="#">z/OS agents</a> .
All Step Actions	ops_zos_step_action	Contains details about <a href="#">z/OS step actions</a> .
System Operations	ops_zos_step_action_sysop	Contains details about <a href="#">z/OS System Operation step actions</a> .
System Operations Versions	ops_zos_step_action_sysop_v	Contains details about <a href="#">previous versions</a> of <a href="#">z/OS System Operation step actions</a> . (Versions are created only when a record is updated.)
Step Actions	ops_zos_step_action_v	Contains <a href="#">previous versions</a> of <a href="#">z/OS step actions</a> . (Versions are created only when a record is updated.)

## 18 Single Sign-On Settings

### 18.1 Overview

#### Note

The information provided on this page assumes you have a working knowledge of SAML Single Sign-On.

Universal Controller enables Web Browser Single Sign-On (SSO) through Security Assertion Markup Language 2.0 (SAML 2.0). SAML 2.0 is an XML-based protocol for exchanging security information between a SAML Identity Provider and a SAML Service Provider.

As a SAML Service Provider, Universal Controller accepts authentication assertions from a configured SAML Identity Provider compliant with the SAML 2.0 Web Browser Single Sign-On profile.

SAML Single Sign-On eliminates the need for application-specific passwords. Universal Controller issues an authentication request to the configured Identity Provider, through the web browser, for any unauthenticated user accessing the Universal Controller web application through the SAML Login URL.

Universal Controller uses SAML Single Sign-On for authentication and [User Provisioning](#). All user and group authorization must be configured within Universal Controller through [Permission](#) and [Role](#) assignment.

### 18.2 Terminology

IdP	Identity Provider (for example, Okta)	Third-party system that pre-authenticates SAML users.
SAML	Security Assertion Markup Language	SAML is an XML-based protocol for exchanging security information between a SAML Identity Provider and a SAML Service Provider.
SP	Service Provider (for example, Universal Controller)	Receives and accepts authentications via SAML Single Sign-On.
SSO	Single Sign-On	Method of authentication.

### 18.3 Single Sign-On Login

SAML Single Sign-On can be initiated by either Universal Controller, as the Service Provider, or the Identity Provider.

Only users designated with **Single Sign-On** as a [Login Method](#) can authenticate using SAML Single Sign-On. However, users designated with both **Standard** and **Single Sign-On** as a Login Method can continue to log into the Universal Controller using the standard application URL (see [Logging In](#)).

### 18.3.1 Service Provider-Initiated Login

Universal Controller, as a Service Provider, will initiate the SAML Single Sign-On login flow when an unauthenticated user accesses the web application through the following URL.

`http(s)://<server:port>/uc/saml`

### 18.3.2 Identity Provider-Initiated Login

Identity Provider-initiated SAML Single Sign-On begins at the Identity Provider, typically by accessing an application-specific Identity Provider URL. Once authenticated, the user will be taken to the Universal Controller web application.

### 18.3.3 Action URLs

Any [Action URL](#) parameters on the URL used by the SAML-authenticated user to access the Universal Controller web application are restored when the Service Provider-initiated SAML SSO authentication flow has completed successfully and the user has been redirected back to the Universal Controller web application.

**Note:**

This is not applicable for an Identity Provider-initiated login.

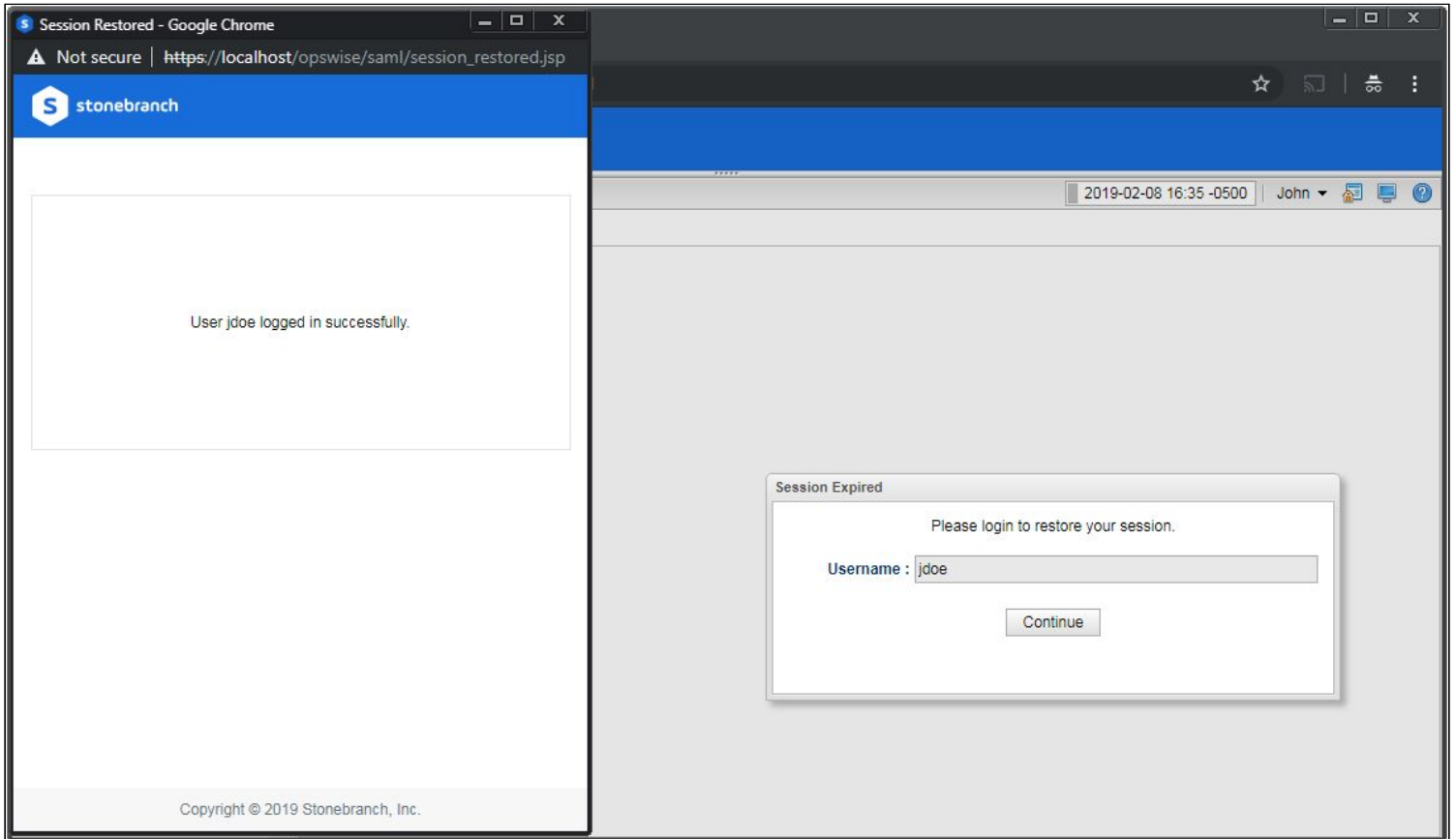
### 18.3.4 Session Expired

Universal Controller allows you to restore an HTTP session without leaving the application (or losing data) by prompting you to re-enter your login credentials in a Session Expired pop-up:

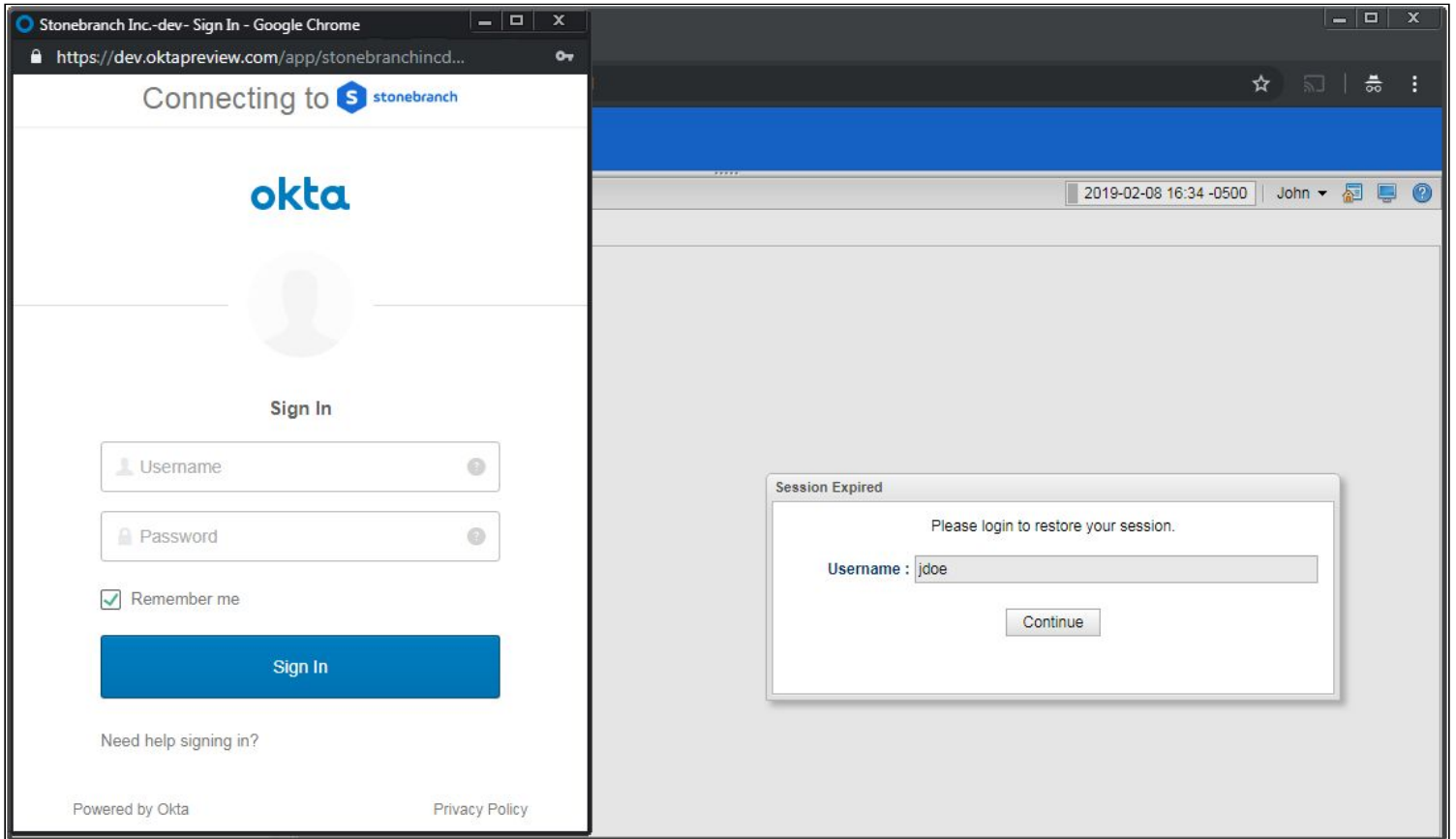
The image shows a 'Session Expired' dialog box. The title bar reads 'Session Expired'. The main content area contains the text 'Please login to restore your session.' Below this text is a text input field with the label 'Username : ' and the value 'jdoe' entered. At the bottom center of the dialog is a button labeled 'Login'.

If you are a SAML-enabled user, the Controller allows you to initiate the SAML Single Sign-On authentication flow without leaving the application. On the Session Expired pop-up, instead of entering your login credentials, simply click the Login button to initiate the SAML SSO authentication flow..

If only your Universal Controller session has expired, and not your session with the Identity Provider, you are logged in without being prompted for your credentials. Click Continue on the original dialog to proceed, which closes the SAML SSO authentication flow window.



If your session with the Identity Provider has expired, you are prompted for its login credentials.



When the Identity Provider has authenticated you and the SAML SSO authentication flow has completed, click Continue on the original dialog to proceed, which closes the SAML SSO authentication flow window.

### 18.3.5 Administrator Account

Modification of the ops.admin account Login Method is not permitted; therefore, the account will always be accessible for cases where, for example, Single Sign-On Settings are incorrectly configured or the Identity Provider is inaccessible.

## 18.4 Single Logout

Universal Controller supports SAML Single Logout for SAML-authenticated users, in accordance with the SAML 2.0 Single Logout profile.

By initiating the [Logout](#) menu option, a SAML-authenticated user is initiating Single Logout.

The Single Logout profile terminates the session at the originating Service Provider (Universal Controller), the Identity Provider session, and, potentially, sessions at other Service Providers connected to the same Identity Provider session, depending on the Identity Provider implementation.

#### Note

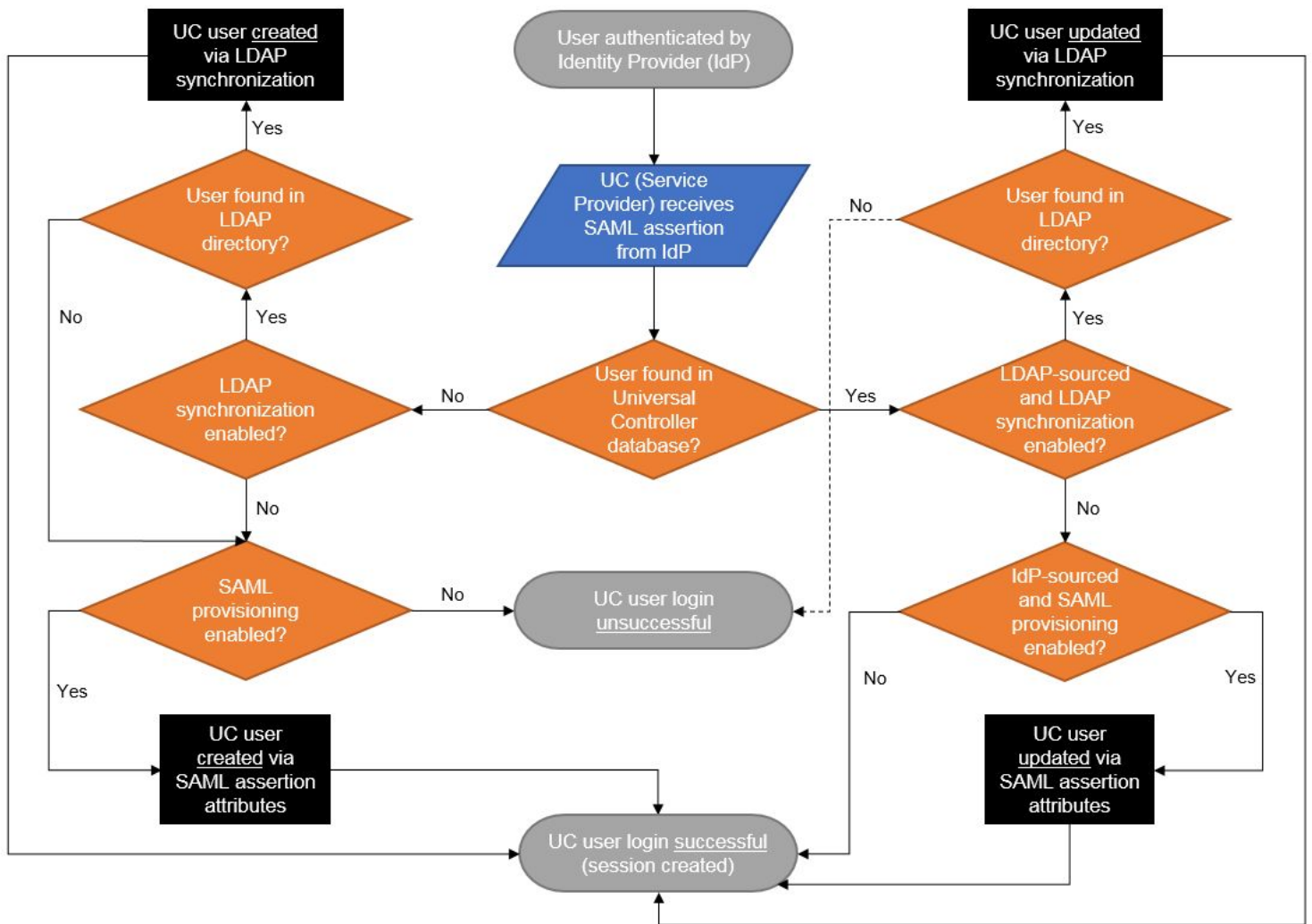
It is required that the configured Identity Provider metadata declares a Single Logout endpoint.

### 18.4.1 User Sessions

The administrative functionality in the user interface that allows for management of [User Sessions](#) is applicable only for local Universal Controller sessions; therefore, expiring a user's session through this interface is only expiring the local Universal Controller session.

## 18.5 User Provisioning

The following diagram illustrates the expectations in Universal Controller for provisioning users from attributes available in the SAML assertion:



As illustrated, when LDAP synchronization is enabled, provisioning of users through LDAP synchronization takes precedence over provisioning of users through the SAML assertion during the Single Sign-On process.

During the next scheduled LDAP refresh, consistent with locally created users and groups, any Identity Provider-sourced user or group matching a user or group synchronized from the LDAP automatically is converted to an LDAP-sourced user or group.

Once a user has been provisioned (created) in the Universal Controller database, its Source (ldap:dn or idp:remote-entity-id) determines how the user record is refreshed during the next login through single sign-on.

## 18.5.1 User Attribute Mapping

For Universal Controller to correlate SAML assertion attributes with Universal Controller user fields, Universal Controller must provide a way to configure a mapping between Universal Controller User fields and SAML assertion attributes.

The following Universal Controller [user](#) fields are mappable.

- User Id (Required)  
(This field automatically is mapped to the SAML Subject NameID from the SAML assertion and cannot be changed.)
- First Name (Required)
- Middle Name
- Last Name
- Email
- Title
- Department
- Manager  
(This field is a reference to another user and is mapped only if the attribute value contains the [Name](#) of a valid Universal Controller user.)
- Business Phone
- Mobile Phone
- Home Phone
- Active

Any user created by SAML assertion attributes, during the single sign-on process, is considered an Identity Provider-sourced user. See [Attribute Mappings](#) in [Single Sign-On Settings](#).

## 18.5.2 User Field Defaults

Single Sign-On provisioned [users](#) are created with the following default field values:

Field	Value
User Password	random, 32-characters
Password Requires Reset	true
Login Method	Single Sign-On
Web Browser Access	-- System Default --
Command Line Access	-- System Default -- Applies only to users designated to use the Standard login method.
Web Service Access	-- System Default -- Applies only to users designated to use the Standard login method.

## 18.5.3 Group Membership Attribute Mapping

An additional configuration is provided to allow for assigning group membership using the SAML assertion. Universal Controller allows configuring which SAML assertion attribute contains the user's group membership.

To support multiple groups, the attribute is multi-valued, where each attribute value specifies the [Group Name](#) of a Universal Controller group for which the user belongs. If the Universal Controller group is not already provisioned, it is provisioned automatically as an Identity Provider-sourced group.

If a group membership attribute mapping is specified, any time that an Identity Provider-sourced user authenticates using SAML Single Sign-On, its group membership will be updated based on the group attribute value in the accepted SAML assertion. The user will be added to, or removed from, groups accordingly.

## 18.6 SAML Configuration

### 18.6.1 Service Provider Metadata

Universal Controller is configured for automatic generation of Service Provider metadata. By default, the Service Provider Entity ID for a Universal Controller deployment is: <https://uc.stonebranch.com/sp>.

However, Universal Controller allows an administrator to customize the Service Provider Entity ID by specifying a Service Provider Entity ID Subdomain in the [Single Sign-On Settings](#) in the user interface.

For example, an Service Provider Entity ID Subdomain value of `dev` would allow for a Service Provider Entity ID of <https://dev.uc.stonebranch.com/sp>.

### 18.6.2 SAML Endpoints

To generate the SAML endpoints for the Service Provider metadata, an SP Entity Base URL for Universal Controller must be determined. By default, Universal Controller uses information from first request after the Controller has been initiated to automatically generate a Service Provider Entity Base URL in the format `scheme://server:port/contextPath`.

For example: <https://example.stone.branch:443/uc>

To configure the SP Entity Base URL to a specific value, an administrator can specify the Service Provider Entity Base URL from the [Single Sign-On Settings](#) in the user interface.

The following table documents the SAML endpoints, and their supported bindings, contained within the Universal Controller Service Provider metadata.

SAML Profile	Binding	Endpoint
Web Single Sign-on	HTTP-POST, HTTP-Artifact	<code>scheme://server:port/contextPath/saml/SSO</code>
Single Logout	HTTP-POST, HTTP-Redirect	<code>scheme://server:port/contextPath/saml/SingleLogout</code>

Universal Controller provides a [Service Provider Metadata](#) link, from the Single Sign-On Settings, for downloading the Universal Controller Service Provider metadata file.

Alternatively, you can download the metadata file directly using the following URL:

`http(s)://<server:port>/uc/saml/metadata`

### 18.6.3 Identity Provider Metadata

Universal Controller requires the Identity Provider configuration provided in the form of an IdP metadata XML file.

You can download the Identity Provider metadata file from the Identity Provider and save it under the Tomcat `conf/` directory, in a `saml/` subdirectory.

You can specify the location of the Identity Provider metadata file in the [Single Sign-On Settings](#) Details of the user interface. By default, on initial start-up, the Controller automatically populates the Identity Provider metadata file setting with a value of `${catalina.base}/conf/saml/idp.xml`.

For example, if `${catalina.base}` resolves to `/opt/tomcat`, the Identity Provider metadata file setting would be populated with `/opt/tomcat/conf/saml/idp.xml`.

## 18.6.4 SAML KeyStore

SAML message exchanges required for the Web Browser SSO profile and the Single Logout profile involve usage of cryptography for the signing and encryption of data.

The Universal Controller requires a single JKS keystore that contains all private and public keys. The keystore must have one default private key.

To create the JKS keystore file, with the default private key, assuming your Identity Provider does not require keys be signed by a specific certification authority, you can use the Java utility `keytool` command to generate a self-signed key, entering the distinguished name information when prompted.

```
keytool -genkeypair -keyalg RSA -sigalg SHA256withRSA -alias ucsaml -keypass ucsaml
-keystore samlKeystore.jks -storepass ucsaml -storetype JKS
```

To import a key signed by a certification authority, which are typically provided in `.p12/.pfx` format (or can be converted to `.p12/.pfx` format using OpenSSL), you can use the following `keytool` command.

```
keytool -importkeystore -srckeystore key.p12 -srcstoretype PKCS12 -srcstorepass password
-alias alias -destkeystore samlKeystore.jks -destalias ucsaml -destkeypass ucsaml
```

To determine the alias available in the p12 file, you can use the following command.

```
keytool -list -keystore key.p12 -storetype pkcs12
```

If your Identity Provider metadata is signed, to verify trust of the signature, Universal Controller will use all keys found in the configured keystore. To import the public certificate of the metadata signature, you can use the following `keytool` command.

```
keytool -importcert -alias alias -keystore samlKeystore.jks -file signature.cer
```

The location of the KeyStore File can be specified from the Single Sign-On Settings in the user interface. However, by default, Universal Controller automatically populates the KeyStore File setting with a value of `${catalina.base}/conf/saml/samlKeystore.jks` on initial start-up.

For example, if `${catalina.base}` resolves to `/opt/tomcat`, the KeyStore File setting would be populated with `/opt/tomcat/conf/saml/samlKeystore.jks`.

The JKS keystore password, the default private key alias, and the default private key password can also be specified from the Single Sign-On Settings in the user interface. Each of these settings are populated with a default value of `ucsaml` on initial start-up.

If your Identity Provider requires that you upload the public key certificate for the SAML Single Logout profile, you can export the certificate from the JKS keystore as follows.

```
keytool -exportcert -alias ucsaml -file ucsaml.cer -keystore samlKeystore.jks -storepass ucsaml -storetype JKS
```

### 18.6.5 Java Cryptography Extension (JCE)

Universal Controller is configured to use signature algorithm SHA256withRSA and digest method algorithm SHA-256.

Use of SAML Single Sign-On requires installation of the Java Cryptography Extension (JCE) [Unlimited Strength Jurisdiction Policy Files](#) for JDK/JRE 8 to remove limitations on cryptography capabilities.

#### Note

Starting with Java 1.8.0\_162, JCE unlimited policy is enabled by default. You no longer need to install the policy file in the JRE or set the security property `crypto.policy`.

### 18.6.6 Debugging

The `saml.log.level` property can be configured in the `uc.properties` to enable debug logging for the SAML framework. However, as a best practice, `saml.log.level` should remain at INFO under normal operation.

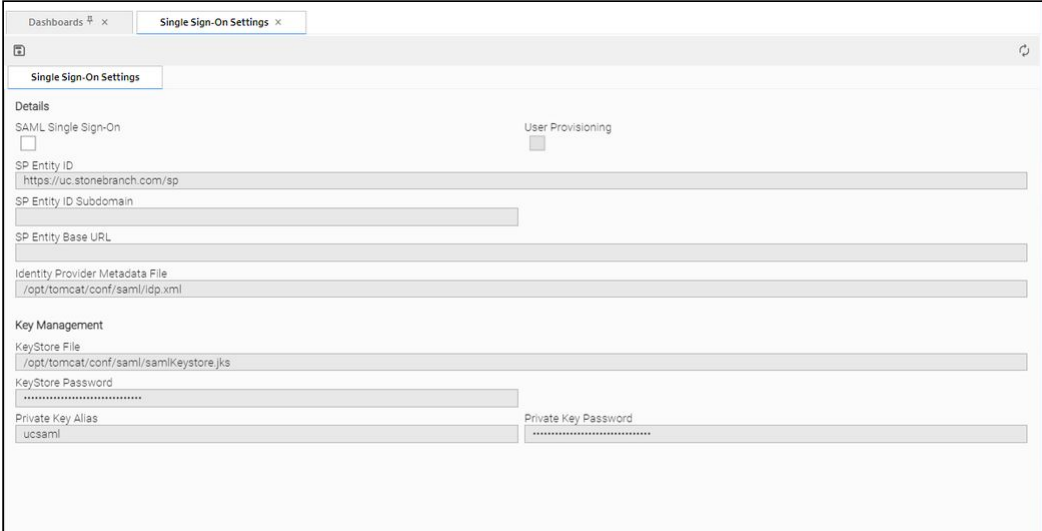

## 18.7 Single Sign-On Settings

An administrator can turn on/off and configure SAML Single Sign-On through the user interface.

#### Note

Each Universal Controller cluster node maintains its own Single Sign-On Settings configuration, associated by Node Id. Therefore, you must complete the Single Sign-On Settings configuration for each deployed cluster node, including the Active node and any Passive nodes.

The Identify Provider Metadata File and KeyStore File, by default located under `/${catalina.base}/conf/saml/`, must be accessible to each cluster node.

<p><b>Step 1</b></p>	<p>From the <a href="#">Administration</a> navigation pane, select <b>Configuration &gt; Single Sign-On Settings</b>. The Single Sign-On Settings page displays.</p> 
<p><b>Step 2</b></p>	<p>Enter / select your Single Sign-On Settings, using the <a href="#">field descriptions</a> below as a guide.</p> <ul style="list-style-type: none"> <li>• Required fields display an asterisk ( * ) after the field name.</li> <li>• Default values for fields, if available, display automatically.</li> </ul>
<p><b>Step 3</b></p>	<p>Click the  button.</p>

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

### 18.7.1 Single Sign-On Settings Field Descriptions

The following table describes the fields and buttons that display in the Single Sign-On Settings.

Field Name	Description
<b>Details</b>	This section contains detailed information on the Single Sign-On settings.
SAML Single Sign-On	If enabled, turns on SAML Single Sign-On. If disabled, all fields are read-only.
User Provisioning	If enabled, turns on the <a href="#">provisioning of users</a> through SAML assertion attributes.
SP Entity ID	Read-only; Unique identifier of the Universal Controller Service Provider.
SP Entity ID Subdomain	Customize the SP Entity ID with a unique subdomain.

SP Entity Base URL	Base URL to construct SAML endpoints from; must be a URL with protocol, server, port, and context path. If one is not specified, it defaults to values from the initial request in this format: <code>scheme://server:port/contextPath</code>
Identity Provider Metadata File	Identity Provider metadata file location.
Service Provider Metadata	Link to download the Service Provider metadata for the Universal Controller node.
<b>Key Management</b>	
KeyStore File	Keystore file location.
KeyStore Password	Password used to protect the integrity of the keystore. Default is <code>ucsaml</code> .
Private Key Alias	Alias of the private key (with either self-signed or CA-signed certificate) used to digitally sign SAML messages. Default is <code>ucsaml</code> .
Private Key Password	Password used to protect the integrity of the private key. Default is <code>ucsaml</code> . See <a href="#">SAML KeyStore</a> .
<b>Attribute Mappings</b>	<p>If <a href="#">User Provisioning</a> is enabled; This section allows you to configure a mapping between user fields and attributes from the attribute statement of a SAML assertion. It is displayed only when <a href="#">User Provisioning</a> is enabled. See <a href="#">User Attribute Mapping</a> for more details.</p> <p>In addition to user fields, you can specify an attribute mapping for Groups allowing for automatic provisioning of a user's group membership. See <a href="#">Group Membership Attribute Mapping</a> for more details.</p>
First Name	Name of an attribute, of type <code>xs:string</code> or <code>xs:any</code> , from the attribute statement of the SAML assertion containing the <a href="#">First Name</a> of the user.
Middle Name	Name of an attribute, of type <code>xs:string</code> or <code>xs:any</code> , from the attribute statement of the SAML assertion containing the <a href="#">Middle Name</a> of the user.
Last Name	Name of an attribute, of type <code>xs:string</code> or <code>xs:any</code> , from the attribute statement of the SAML assertion containing the <a href="#">Last Name</a> of the user.
Email	Name of an attribute, of type <code>xs:string</code> or <code>xs:any</code> , from the attribute statement of the SAML assertion containing the <a href="#">Email</a> of the user.
Active	<p>Name of an attribute, of type <code>xs:boolean</code>, <code>xs:string</code> or <code>xs:any</code>, from the attribute statement of the SAML assertion containing the <a href="#">Active</a> condition of the user.</p> <p>Non-boolean type values that evaluate to <b>true</b> are "true", "1", "yes", and "on." All other non-boolean type values evaluate to <b>false</b>.</p>
Groups	Name of a multi-valued attribute, of type <code>xs:string</code> or <code>xs:any</code> , from the attribute statement of the SAML assertion containing the <a href="#">Group Name</a> of each group that the user is a member of.
Title	Name of an attribute, of type <code>xs:string</code> or <code>xs:any</code> , from the attribute statement of the SAML assertion containing the <a href="#">Title</a> of the user.
Department	Name of an attribute, of type <code>xs:string</code> or <code>xs:any</code> , from the attribute statement of the SAML assertion containing the <a href="#">Department</a> of the user.
Manager	Name of an attribute, of type <code>xs:string</code> or <code>xs:any</code> , from the attribute statement of the SAML assertion containing the <a href="#">Name</a> of the <a href="#">Manager</a> of the user.

Business Phone	Name of an attribute, of type <code>xs:string</code> or <code>xs:any</code> , from the attribute statement of the SAML assertion containing the <a href="#">Business Phone</a> of the user.
Mobile Phone	Name of an attribute, of type <code>xs:string</code> or <code>xs:any</code> , from the attribute statement of the SAML assertion containing the <a href="#">Mobile Phone</a> of the user.
Home Phone	Name of an attribute, of type <code>xs:string</code> or <code>xs:any</code> , from the attribute statement of the SAML assertion containing the Home Phone of the user.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Single Sign-On Settings that let you perform various actions.
<b>Update</b>	Unable to render include or excerpt-include. Could not retrieve page.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Single Sign-On Settings.

## 18.7.2 Default Configuration

Upon initial start-up of Universal Controller, a default Single Sign-On Settings record is created and associated with the Universal Controller node by node id. The settings are specific to the Universal Controller node, as the SP Entity ID, Base URL, and File paths may differ between each Universal Controller node. See [Single Sign-On Settings Field Descriptions](#), above, for the default configuration.

## 18.7.3 Security

Single Sign-On Settings can be viewed only by users with the [ops\\_admin](#) role, regardless of Navigation Visibility; therefore, only users with the [ops\\_admin](#) role can update Single Sign-On Settings.

## 18.7.4 Bulk Import/Export

Any Single Sign-On Settings record in the database that has a corresponding Universal Controller node is exported to `ops_single_sign_on.xml` during the [Bulk Export](#) server operation.

Single Sign-On Settings being updated through the [Bulk Import](#) server operation are applied immediately; however, you can update the Single Sign-On Settings only for the node you are performing the Bulk Import on.

# 18.8 Troubleshooting

## 18.8.1 NameID

The SAML Subject NameID from the SAML assertion received from the Identity Provider correlates directly to the User ID field of a user record in the Universal Controller database.

- If User Provisioning is off, the NameID must match with the User ID field of an existing user record in the Universal Controller database.
- If User Provisioning is on, any provisioned user record will be assigned a User ID equivalent to the NameID.

## 18.8.2 Login Errors

<b>Universal Controller Uninitialized</b>	<p>While the Universal Controller web application is initializing, the user login flow cannot proceed. Any users attempting to authenticate with SAML at this time receive the following error:</p> <p>Universal Controller is being initialized. Please try again later.</p>
<b>User Account Not Found</b>	<p>Any SAML-authenticated user who cannot be linked to a user account in the Universal Controller database is prohibited from accessing the application and receives the following error:</p> <p>User 'username' not synchronized with Universal Controller. Please check with your administrator.</p> <p>Additionally, the uc.log will contain the following warning:</p> <p>User 'username' authenticated by identity provider 'remote-entity-id' not synchronized with a Universal Controller account.</p>
<b>User Account Not Active</b>	<p>Any SAML-authenticated user linked to a Universal Controller user account that is not Active is prohibited from accessing the application and receives the following error:</p> <p>User 'username' not synchronized with Universal Controller. Please check with your administrator.</p> <p>Additionally, the uc.log will contain the following warning:</p> <p>User 'username' authenticated by identity provider 'remote-entity-id' is synchronized with an inactive Universal Controller account.</p>
<b>Login Method</b>	<p>Any SAML authenticated user linked to a Universal Controller user account that is not designated to use Single Sign-On login method is prohibited from accessing the application and receives the following error:</p> <p>User 'username' not synchronized with Universal Controller. Please check with your administrator.</p> <p>Additionally, the uc.log will contain the following warning:</p> <p>User 'username' authenticated by identity provider 'remote-entity-id' is not permitted to use Single Sign-On login method.</p>
<b>User Account Locked</b>	<p>Any SAML-authenticated user linked to a Universal Controller user account that is locked is prohibited from accessing the application and receives the following error:</p> <p>User account 'username' is locked. Please check with your administrator.</p>
<b>No Web Browser Access</b>	<p>Any SAML-authenticated user linked to a Universal Controller user account designated with the Single Sign-On login method, but without Web Browser Access, is prohibited from accessing the application and receives the following error:</p> <p>User 'username' not permitted to login through the web browser. Please check with your administrator.</p>

**Authentication Statement Too Old**

If users already are authenticated with their Identity Provider, depending on how long their Identity Provider allows them to stay authenticated, they could experience an "Error validating SAML message" authentication error when signing into the Universal Controller through single sign-on.

If users are experiencing this error, search the uc.log for the following message:

```
Authentication statement is too old to be used with  
value 2019-08-15T19:22:56.312Z
```

Upon confirming the presence of the above message, review property [saml.maxAuthenticationAge](#) and adjust accordingly.

This property allows you to set the maximum time between a user's authentication and processing of an authentication statement, which by default is 7200 seconds.

# 19 Universal Templates

## 19.1 Universal Templates

The following pages are provided for Universal Templates:

- [Universal Templates Overview](#)
- [Creating a Universal Template](#)
- [Copying Universal Templates](#)
- [Integrations](#)

## 19.2 Universal Templates Overview

### 19.2.1 Introduction

Universal Templates allows you to create the templates on which [Integrations](#) are based.

Within each Universal Template, you:

- Enter either:
  - A script that will be executed by any Universal Task based on that Universal Template.
  - An Extension that will be executed by any Universal Task based on that Universal Template through the [Universal Extension](#) framework.
- Create [Fields](#) that the Universal Controller:
  - Assigns matching [variables](#) for use in the Universal Template [script](#).
  - Adds matching fields to the Details of any Universal Task that you create based on that Universal Template.

When you create a Universal Template, the Controller creates a Universal Task type, under the Universal Tasks folder in the [Automation Center](#) navigation pane, based on that Universal Template.

When you create a Universal Task for that Universal Task type, its Details display - among other fields - the fields that you created in the Universal Template.

When you run the Universal Task, it executes the script in the Universal Template, and the variables in the script are resolved to the user-defined values of their matching fields in the Universal Task instance.

#### Note

Administration of Universal Templates requires the [ops\\_universal\\_template\\_admin](#) or [ops\\_admin](#) role.

## 19.2.2 Universal Template Scripts

A Universal Template can contain any user-defined script. Any script [variables](#) to be resolved to Universal Task field values when the task executes the script must be in a specific [format](#).

If you change the script in a Universal Template, the Universal Tasks based on that template execute that changed script when they are run. With Universal Task / Universal Template, you do not have to change the scripts in multiple tasks, just in the template.

## 19.2.3 Universal Template Fields

For each [Field](#) that you create for a Universal Template, the Controller:

- Assigns it a matching [variable](#) for use in the Universal Template [script](#).
- Adds a matching field to the Details of all [Integrations](#) based on that template.

When a Universal Task is run, it executes the script, and the system-assigned script variables are resolved to the user-defined values of their matching fields in the Universal Task instance.

You can enter seven types of Fields in a Universal Template:

- Text
- Integer
- Boolean
- Choice
- Credential
- Script
- Array

For each Field, you specify information regarding its appearance in the task Details for any Universal Task based on that template, including:

- Value
- Location
- Required or optional

### Note

You must [refresh the list](#) of Universal Tasks that are based on a Universal Template in order for any changes to the Universal Template Fields to be applied to the Universal Task Details.

For detailed information about these Fields, see [Creating Universal Template Fields](#).

## 19.2.4 Universal Template Variables

For each [Field](#) that you create for a Universal Template, the Controller assigns it a variable and adds the Field to the Details of all Universal Tasks based on that template.

These system-assigned variables are provided for use in the Universal Template [script](#). When a Universal Task based on the template is run, it executes the script in the template, and all system-assigned variables in the script are resolved to the values of their matching fields in the Universal Task.

The system-assigned variables that are available for use in a Universal Template script must be in this format:

`ops_<Variable Prefix>_<Field Name>`

<code>ops_</code>	Controller prefix used for all built-in variables and system-assigned variable.
<code>&lt;Variable Prefix&gt;</code>	Value of the user-defined <a href="#">Variable Prefix</a> field in the <a href="#">Universal Template Details</a> , followed by an underscore ( <code>_</code> ) character.
<code>&lt;Field Name&gt;</code>	Name (not Label) of the user-defined Universal Template field to which the Controller assigns this variable.

**Note**

If a Universal Template Field is required (either directly via the [Required](#) field in the Universal Template Field Details or indirectly via the [Required If Field](#) field), and its matching field in the Details of a Universal Task Instance is undefined after variable resolution, the Universal Task Instance will transition into the [Start Failure](#) status.

If a Universal Template Field is not Required, and its matching field in Details of a Universal Task Instance is undefined after variable resolution, the system-assigned variable for that Field will resolve to blank.

If a Universal Template Field with [Type](#) = Choice has a [Choice](#) with a NULL (or blank) [Value](#) at run time, a Universal Task Instance will transition into the [Start Failure](#) status.

### 19.2.5 Setting Up Universal Templates and Tasks

<b>Step 1</b>	Create a <a href="#">Universal Template</a> , which includes selecting the <a href="#">type of Agent(s)</a> on which Universal Tasks based on this Universal Template can be run, and a <a href="#">variable prefix</a> used for script variables that you want resolved when a Universal Task executes the script in this Universal Template.
<b>Step 2</b>	Enter a script in the Universal Template that all Universal Tasks based on this Universal Template will execute when they are run.
<b>Step 3</b>	After you have entered/selected any other desired values in the <a href="#">Universal Template Details</a> , save the Universal Template.
<b>Step 4</b>	For each parameter in the script that you want to replace with a variable, create a Universal Template Field of an appropriate Field type. The Controller automatically assigns a variable (format: <code>ops_&lt;Variable Prefix&gt;_&lt;Field Name&gt;</code> ) to each Field, using the variable prefix that you specified in Step 1, and will place those Fields in the Details of all Universal Tasks based on this Universal Template.
<b>Step 5</b>	Replace the appropriate parameters in the script with the system-assigned variables.
<b>Step 6</b>	Update the Universal Template. Now that the Universal Template has one or more defined Fields, the Controller creates a Universal Task type for it and adds the Universal Task type to the Automation Center navigation pane. (You must <a href="#">refresh</a> the Automation Center navigation pane in order to see the new Universal Task type.

<b>Step 7</b>	Create a Universal Task for that Universal Task type. The Universal Task Details will contain the fields that you created in the Universal Template for that Universal Task type.
<b>Step 8</b>	Enter/change values in the Universal Task fields that match the Universal Template fields, based on how you want their matching variables in the script to be resolved.
<b>Step 9</b>	Run the task, which executes the script. The variables in the script are resolved to the values of their matching fields in the Universal Task.

## 19.2.6 Importing / Exporting Universal Templates

The Import/Export Universal Template feature supports importing/exporting a Universal Template as a zip file.

A Universal Template zip file includes the following entries:

File Name	Description	Optional
template.json	The Universal Template definition in JSON format.	No
template_icon.png	The Universal Template <b>icon</b> in PNG format.  <div style="border: 1px solid orange; padding: 5px; margin: 5px 0;"> <p><b>Note</b> Icon metadata will be set as attributes in the Universal Template JSON.</p> </div>	Yes
extension_archive.zip	The Universal Template <b>Extension Archive</b> in ZIP format.	Yes

<b>Export</b>	<p>To export an existing Universal Template as a zip file, click the <b>Export Template</b> button in the Universal Template Details.</p> <p>(You can also click <b>Export Template</b> in the <a href="#">Action menu</a> that displays for that Universal Template record.)</p> <p>The exported Universal Template has the following filename format:</p> <p><b>unv_tmplt_UniversalTemplateName-extensionVersion.zip</b></p> <div style="border: 1px solid orange; padding: 5px; margin: 5px 0;"> <p>Any character in the <i>UniversalTemplateName</i> that is not an alphanumeric or underscore, will be replaced with an underscore.</p> </div>
<b>Import</b>	To import a Universal Template zip file, click the <b>Import Template...</b> button on the Universal Templates list.

### 19.2.6.1 Release Levels

Export Template sets the following release level attributes in the Universal Template JSON:

Attribute	Description
minReleaseLevel	The minimum Universal Controller release level required to import the Universal Template. "minReleaseLevel" : "7.0.0.0"
exportReleaseLevel	The release level of the Universal Controller that the Universal Template was exported from. "exportReleaseLevel" : "7.0.0.0"

Import Template validation prevents importing a Universal Template if the Universal Controller does not meet the minimum release level requirement:

*Cluster Node release level is 7.0.0.0, which does not meet the minimum release level of 7.0.0.1 for the Template.*

## 19.2.7 List Import/Export

The [List Import/Export](#) feature continues to support exporting the Universal Task and Universal Template, as it has in previously releases.

Comparable to the Universal Template **Icon**, the **Extension Archive** will be encoded in the XML as base64.

List Import validation prevents an extension name from being associated with more than one Universal Template:

*The template 'template-name1' specifies an extension name 'extension-name' that is already associated with template 'template-name2'.*

## 19.2.8 Restrictions on Universal Template Changes

There are restrictions on the changes that you can make on Universal Templates, because some changes (such as adding a new field with a default value), can automatically change existing Universal Task and Universal Task Instances based on that Template.

Some Universal Template changes are restricted, based on the existence of Universal Tasks and Universal Task Instances.

Universal Templates do not have versioning; therefore, reverting a Universal Template change must be done manually, and the restrictions still apply.

Some changes cannot be reverted; for example, you cannot broaden the Agent Type, and then narrow it. Universal Tasks do have versioning, but changes to a Universal Template that automatically change a Universal Task, such as adding a new field with a Default Value, do not generate a new version.

Any promoted Bundle that includes Universal Template changes cannot be restored.

### 19.2.8.1 Restriction Conditions

Restrictions on changing Universal Templates (see [List of Restrictions](#), below) depend on the following conditions:

Condition	Restrictions
Both Universal Tasks and Universal Task Instances exist.	All restrictions apply.
Universal Tasks exist, but no Universal Task Instances exist.	All restrictions apply.
Universal Task Instances exist, but no Universal Tasks exist.	All restrictions apply if the Universal Task Instances are still <a href="#">active</a> .

Condition	Restrictions
Neither Universal Tasks nor Universal Task Instances exist.	None of the restrictions apply unless otherwise noted.

### 19.2.8.2 List of Restrictions

Action	Restriction
<b>For Universal Templates</b>	The following Delete and Update actions refer to Universal Templates and the fields in Universal Template Details.
<b>Delete a Template</b>	<ul style="list-style-type: none"> <li>Prohibited.</li> </ul>
<b>Update a Template</b>	
<ul style="list-style-type: none"> <li>Name</li> </ul>	<ul style="list-style-type: none"> <li>Allowed.</li> </ul>
<ul style="list-style-type: none"> <li>Variable Prefix</li> </ul>	<ul style="list-style-type: none"> <li>Allowed; Requires a corresponding Script change.</li> </ul>
<ul style="list-style-type: none"> <li>Agent Type</li> </ul>	<ul style="list-style-type: none"> <li>Broadening Allowed (Windows to Any, Linux/Unix to Any)</li> <li>Narrowing Not Allowed (Any to Windows, Any to Linux/Unix, Windows to Linux/Unix, Linux/Unix to Windows)</li> </ul>
<ul style="list-style-type: none"> <li>Use Common Script</li> <li>Script</li> <li>Linux/Unix Script</li> <li>Windows Script</li> <li>Windows Script Type</li> </ul>	<ul style="list-style-type: none"> <li>Allowed.</li> </ul>
<b>For Universal Template Fields</b>	The following Add, Delete, and Update actions refer to the user-defined <b>Fields</b> that are added to a Universal Template.
<b>Add a Field</b>	<ul style="list-style-type: none"> <li>Allowed (with conditions); Requires a corresponding Script change.</li> <li>Prohibited if either Required or Required If Field/Required If Field Value(s) are specified.</li> <li>Default Value applied to all Universal Tasks, but not to Universal Task Instances.</li> </ul>
<b>Delete a Field</b>	<ul style="list-style-type: none"> <li>Allowed (with conditions); Requires a corresponding Script change.                             <ul style="list-style-type: none"> <li>Update the only Field.</li> <li>Create a new Field prior to deleting the only Field. Prohibited if the Field is the only Field in the Universal Template Details; User can either:                                     <div data-bbox="721 1541 1541 1848" style="border: 2px solid orange; padding: 10px; margin: 10px 0;"> <p style="border: 1px solid orange; padding: 5px; display: inline-block;">This restriction applies regardless of the existence of Universal Task/ Task Instances associated with the Universal Template.</p> </div> </li> </ul> </li> <li>NULL value is applied to deleted Text, Integer, Choice, and Credential Fields in all Universal Tasks, but not Universal Task Instances.</li> <li>A boolean False value is applied to a deleted Boolean Field for all Universal Tasks, but not Universal Task Instances.</li> </ul>

<b>Update a Field</b>	
<ul style="list-style-type: none"> <li>Name</li> </ul>	<ul style="list-style-type: none"> <li>Prohibited.</li> </ul>
<ul style="list-style-type: none"> <li>Required</li> </ul>	<ul style="list-style-type: none"> <li>Allowed (with conditions).</li> <li>Unchecking the Required field; Allowed (without conditions).</li> <li>Checking the Required field; Allowed only if all Universal Tasks based on the Template have a value specified for this Template Field (does not apply to Universal Task Instances).</li> </ul>
<ul style="list-style-type: none"> <li>Require If Field</li> <li>Require If Field Value(s)</li> </ul>	<ul style="list-style-type: none"> <li>Allowed (with conditions).</li> <li>Removing a Require If Field specification; Allowed (without conditions).</li> <li>Adding a Require If Field specification; Allowed only if all Universal Tasks based on this Template have a value specified for this Template Field (condition does not apply to Universal Task Instances).</li> </ul>
<ul style="list-style-type: none"> <li>Type</li> </ul>	<ul style="list-style-type: none"> <li>Prohibited.</li> </ul>
<ul style="list-style-type: none"> <li>Mapping</li> </ul>	<ul style="list-style-type: none"> <li>Prohibited.</li> </ul>
<ul style="list-style-type: none"> <li>Default Value</li> </ul>	<ul style="list-style-type: none"> <li>Allowed.</li> <li>No Universal Task data will be updated; multi-update can be performed to apply any required changes to pre-existing Universal Task data.</li> </ul>
<ul style="list-style-type: none"> <li>Length</li> </ul>	<ul style="list-style-type: none"> <li>Allowed.</li> <li>No Universal Task data will be updated, as it may not comply with updated Length constraint.</li> </ul>
<ul style="list-style-type: none"> <li>Minimum</li> <li>Maximum</li> </ul>	<ul style="list-style-type: none"> <li>Allowed.</li> <li>No Universal Task data will be updated, as it may not comply with updated Minimum/Maximum constraint.</li> </ul>
<ul style="list-style-type: none"> <li>Boolean Value Type</li> <li>Boolean Yes Value</li> <li>Boolean No Value</li> </ul>	<ul style="list-style-type: none"> <li>Allowed.</li> </ul>
<ul style="list-style-type: none"> <li>Field Display: <ul style="list-style-type: none"> <li>Label</li> <li>Hint</li> <li>Sequence</li> <li>Form Column Span</li> <li>Form Start Row</li> <li>Form End Row</li> <li>Add To Default List View</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Allowed.</li> </ul>
<b>For Universal Template Field Choices</b>	The following Add, Delete, and Update actions refer to the Choices that are defined for a Universal Template Field type of <a href="#">Choice</a> .
<b>Add a Choice</b>	<ul style="list-style-type: none"> <li>Allowed.</li> </ul>

<p><b>Delete a Choice</b></p>	<ul style="list-style-type: none"> <li>• Allowed (with conditions).</li> <li>• Prohibited if the Template Field Choice is the only Choice; user can either:             <ul style="list-style-type: none"> <li>• Update the Choice Value.</li> <li>• Create a new Choice prior to removing the Choice.</li> </ul> </li> </ul> <div style="border: 1px solid orange; padding: 5px; margin: 10px 0;"> <p><b>Note</b> This restriction applies regardless of the existence of Universal Task/Task Instances associated with the Universal Template.</p> </div> <ul style="list-style-type: none"> <li>• Any Universal Tasks using the Choice will still display the value, and substitute the old value into the Script; however, the drop-down will no longer display that Choice as an option.</li> </ul>
<p><b>Update a Choice</b></p>	
<ul style="list-style-type: none"> <li>• Value</li> </ul>	<ul style="list-style-type: none"> <li>• Allowed</li> <li>• Any Universal Task using the previous value will be updated with the new value, but not Universal Task Instances.</li> </ul>
<ul style="list-style-type: none"> <li>• Use Value For Label</li> </ul>	<ul style="list-style-type: none"> <li>• Allowed.</li> </ul>
<ul style="list-style-type: none"> <li>• Label</li> </ul>	<ul style="list-style-type: none"> <li>• Allowed.</li> </ul>
<ul style="list-style-type: none"> <li>• Sequence</li> </ul>	<ul style="list-style-type: none"> <li>• Allowed.</li> </ul>

## 19.3 Creating a Universal Template

### 19.3.1 Overview

This page tells you how to create a [Universal Template](#), [Universal Template Fields](#), [Universal Template Field Choices](#), and [Universal Template Event Templates](#).

You must create Universal Templates in order to create [Integrations](#). For each Universal Template that you create, Universal Controller creates a Universal Task type for which you can create one or more Universal Tasks.

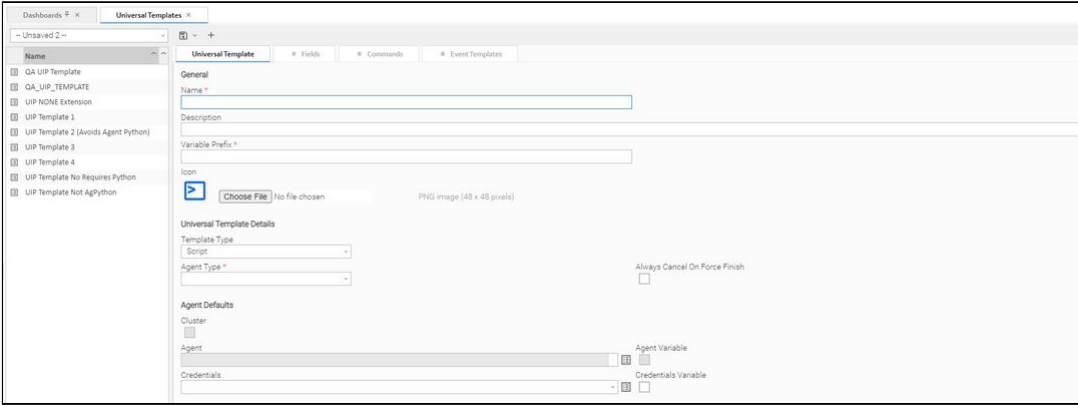
Each Universal Field that you create for a Universal Template becomes a field in every Universal Task based on the corresponding Universal Task type.

If the Universal Template Field that you create is a Choice (drop-down list) field, you must create the choices.

If the Universal Template [Template Type](#) is [Extension](#), you can create [Event Templates](#) for the Universal Template .

For detailed information on Universal Templates and Fields, see [Universal Templates Overview](#).

## 19.3.2 Creating a Universal Template

<p><b>Step 1</b></p>	<p>From the <a href="#">Administration</a> navigation pane, select <b>Universal Templates</b>. The Universal Templates list displays.</p> <div style="border: 1px solid orange; padding: 10px; margin: 10px 0;"> <p><b>Note</b></p> <p>The System Template column, which does not display by default, identifies any <a href="#">Built-In Universal Templates</a> that have been loaded from the <a href="#">List/Load Built-In Universal Templates</a> server operation.</p> </div> <p>To the right of the list, Universal Template Details for a new Universal Template displays.</p> 
<p><b>Step 2</b></p>	<p>Enter / select Details for a new Universal Template, using the <a href="#">field descriptions</a> below as a guide.</p> <ul style="list-style-type: none"> <li>• Required fields display an asterisk ( * ) after the field name.</li> <li>• Default values for fields, if available, display automatically.</li> </ul> <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> <li>• Use the scroll bar.</li> <li>• Temporarily <a href="#">hide the list</a> above the Details.</li> <li>• Click the <b>New</b> button above the list to display a pop-up version of the Details.</li> </ul>
<p><b>Step 3</b></p>	<p>Click a <b>Save</b> button. The template is added to the database, and all buttons and tabs in the Universal Template Details are enabled.</p>

### Note

To [open](#) an existing record on the list, either:

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

### 19.3.2.1 Universal Template Details

The following Universal Template Details is for a new Universal Template, which does not yet contain any user-defined Fields. (See [Creating Universal Template Fields](#) for an existing Universal Template Details containing user-defined fields.)

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

The screenshot shows the 'Universal Template' configuration interface. It includes tabs for 'General', 'Fields', 'Commands', and 'Event Templates'. The 'General' section contains fields for Name, Description, Variable Prefix, and Icon. The 'Universal Template Details' section includes Template Type (Script), Agent Type, and a checkbox for 'Always Cancel On Force Finish'. The 'Agent Defaults' section has fields for Cluster, Agent, Credentials, Agent Variable, and Credentials Variable. The 'Defaults' section includes Runtime Directory and Environment Variables. The 'Result Processing Defaults' section includes Exit Code Processing (Success Exitcode Range), Exit Codes, and Automatic Output Retrieval. The 'Field Restrictions' section includes dropdowns for Agent Fields, Environment Variables Field, Automatic Output Retrieval Fields, Credential Fields, Exit Code Processing Fields, and No Restriction.

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

### 19.3.2.2 Universal Template Details Field Descriptions

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

Field Name	Description
<b>General</b>	This section contains general information about the template.
Name	Name of this Universal Template.

Extension	If <a href="#">Template Type</a> is Extension; Python Extension name.
Description	Description of this record. (Maximum = 255 characters.)
Variable Prefix	<p>Variable prefix to append to the default prefix (ops_) for the <a href="#">system-assigned variables</a> that are provided for the user-defined Fields in this Universal Template. The format of a system-assigned variable is: ops_ , followed by the specified Variable Prefix, followed by the underscore character _ , followed by the <b>Name</b> (not the <b>Label</b>) of the user-defined Field. For example: ops_oeps_username .</p> <p>System-assigned variables are meant to be incorporated into the <a href="#">Script</a> specified for the Universal Template. All system-assigned variables embedded in a Universal Template Script will be resolved when the Universal Task created from the template executes the Script.</p>
Icon	<p>Icon used for all Universal Tasks based on this Universal Template. The icon displays in the following locations:</p> <ul style="list-style-type: none"> <li>• <a href="#">Workflow Editor</a></li> </ul> <p>A default icon displays in the Icon field for every Universal Template (see <a href="#">Universal Template Details</a>, above).</p> <p>If you want to select a custom icon, click the Browse button and then search and select that icon. Any custom icon must be a PNG image, 48 x 48 pixels.</p> <div style="border: 1px solid orange; padding: 10px; margin: 10px 0;"> <p><b>Note</b></p> <p>The button that lets you search for an icon file, and the text message alongside it, is browser-dependent. In this example, which shows a Browse... button and No file selected. text, the browser was Firefox.</p> </div> <p>After you select a custom icon, the file name for that icon displays next to the Browse button. When you save / update the Universal Template, the icon displays in the Icon field, but the file name no longer displays.</p> <p>If you selected a custom icon but want to restore the default icon, right-click anywhere in the Universal Template Details and, in the <a href="#">Action menu</a>, click Restore Default Icon.</p>
Log Level	If <a href="#">Template Type</a> is Extension; Log Level for Universal Extension logging. Specify <b>Inherited</b> to inherit the Agent Log Level setting
<b>Universal Template Details</b>	This section contains assorted detailed information about the template.
Template Type	<p>Type of Universal Template.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Script Universal Template will be executed as a Script.</li> <li>• Extension Universal Template will be executed through the <a href="#">Universal Extension</a> framework.</li> </ul>
Send Extension Variables	<p>If <a href="#">Template Type</a> is Extension; Specification for whether the Extension should be provided with task instance variable data when launched.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• None Do not provide the Extension with task instance variable data.</li> <li>• Local Provide the Extension with task instance variable data.</li> </ul>

Agent Type	Type of Agent on which Universal Tasks based on this template can be run.  Options: <ul style="list-style-type: none"> <li>• Any</li> <li>• Linux/Unix</li> <li>• Windows</li> </ul>
Always Cancel On Force Finish	Specification for whether or not to always perform a Cancel when Force Finishing a Universal Task for this template.
Use Common Script	If <a href="#">Template Type</a> is Script and <a href="#">Agent Type</a> is Any; Indication that the specified <a href="#">Script</a> can be executed by both Linux/Unix and Windows Agents.
Script	If <a href="#">Use Common Script</a> is enabled; Script to be executed by the specified Agent.
Linux/Unix Script	If <a href="#">Template Type</a> is Script and <a href="#">Agent Type</a> is Linux/Unix or Any (and <a href="#">Use Common Script</a> is not enabled); Script to be executed by the Linux/Unix Agent.
Windows Script	If <a href="#">Template Type</a> is Script and <a href="#">Agent Type</a> is Windows or Any (and <a href="#">Use Common Script</a> is not enabled); Script to be executed by the Windows Agent.
Windows Script File Type	If <a href="#">Template Type</a> is Script and <a href="#">Agent Type</a> is Windows or Any; Type of Windows script to be executed by the Windows Agent.  Options: <ul style="list-style-type: none"> <li>• bat</li> <li>• cmd</li> <li>• js</li> <li>• ps1</li> <li>• py</li> <li>• uapy</li> <li>• vbs</li> <li>• wsf</li> <li>• Other... (any user-specified script file type)</li> </ul>
<b>Agent Defaults</b>	This section contains Agent default fields that will display for every Universal Task based on this template.
Cluster	Indication that selecting an <a href="#">Agent Cluster</a> is required and selecting <a href="#">Broadcast</a> , which lets you select a <a href="#">Cluster Broadcast</a> , is optional. If Cluster is selected, selecting an <a href="#">Agent</a> is not required unless <a href="#">Agent Variable</a> is selected.
Broadcast	Displays only if <a href="#">Cluster</a> is selected; Indication that selecting a <a href="#">Cluster Broadcast</a> is required. Selecting Broadcast hides the <a href="#">Agent</a> and <a href="#">Agent Cluster</a> fields; you cannot select values for them.
Agent	Name of the <a href="#">Agent</a> resource that identifies the machine where the operation will run.
Agent Cluster	Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See <a href="#">Agent Clusters</a> for more information.
Agent Variable	Indication of whether the <a href="#">Agent</a> field is a reference field for selecting a specific <a href="#">Agent</a> (unchecked) or a text field for specifying the <a href="#">Agent</a> as a variable (checked). Use the format: \${variable name}. The variable must be a supported type as described in <a href="#">Variables and Functions</a> .  <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the <b>Agent Variable</b> field to <b>Yes</b> and specify the Agent variable in the <b>Agent Unresolved</b> field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the <b>Agent Variable</b> field to <b>No</b> and specify the Agent reference in the <b>Agent</b> field.</p> </div>

<p>Agent Cluster Variable</p>	<p>Indication of whether the <a href="#">Agent Cluster</a> field is a reference field for selecting a specific <a href="#">Agent Cluster</a> (unchecked) or a text field for specifying the <a href="#">Agent Cluster</a> as a variable (checked). Use the format: <code>\${variable name}</code> .</p> <p>The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the <b>Agent Cluster Variable</b> field to <b>Yes</b> and specify the Agent Cluster variable in the <b>Agent Cluster Unresolved</b> field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the <b>Agent Cluster Variable</b> field to <b>No</b> and specify the Agent Cluster reference in the <b>Agent Cluster</b> field.</p> </div>
<p>Credentials</p>	<p><a href="#">Credentials</a> under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task.</p> <p>If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name.</p>
<p>Credentials Variable</p>	<p>Indication of whether the <a href="#">Credentials</a> field is a reference field for selecting a specific <a href="#">Credential</a> (unchecked) or a text field for specifying the <a href="#">Credential</a> as a variable (checked). Use the format: <code>\${variable name}</code> .</p> <p>The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>When <a href="#">updating multiple Tasks</a>, to change from using a Credentials reference to using a Credentials variable, you must change the <b>Credentials Variable</b> field to <b>Yes</b> and specify the Credentials variable in the <b>Credentials Unresolved</b> field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the <b>Credentials Variable</b> field to <b>No</b> and specify the Credentials reference in the <b>Credentials</b> field.</p> </div>
<p>Cluster Broadcast</p>	<p>Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.</p>
<p>Cluster Broadcast Variable</p>	<p>Indication of whether the <a href="#">Cluster Broadcast</a> field is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the <a href="#">Cluster Broadcast</a> as a variable (checked). Use the format: <code>\${variable name}</code> .</p> <p>The variable must be a supported type as described in <a href="#">Variables and Functions</a>.</p>
<p>Run with Highest Privileges</p>	<p>If <a href="#">Agent Type</a> is Windows or Any, Execute the task using an elevated privileges token, rather than one subject to User Account Control (UAC) restrictions. An elevated token allows a process to execute with all the privileges available to its specified credentials. For example, a task executed with an administrative account will behave as though it received permission via a UAC dialog to perform a privileged operation.</p> <p>This option will <b>not</b> give a user account privileges that have are not already granted to it. For example, taking ownership of a file is a privileged operation by default. A task will still fail even with this option selected if it is run with a regular user account that has not been granted the ability to change file ownership.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>This option only will affect tasks executed on Windows systems that support User Account Control (UAC). It will have no affect on tasks run on Windows releases prior to Vista (for example, Windows XP, Server 2003).</p> </div>

Interact with Desktop	<p>If <a href="#">Universal Task Interact with Desktop Permitted</a> system property = true; Specification for whether or not a task that runs an application with a GUI requires some manual actions from a user (for example, clicking buttons or entering values).</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>When using this option to display GUI applications on any version of Windows that enforces session 0 desktop isolation (that is, Windows Vista and later), the GUI will only be accessible from the interactive console session. Further, the task will execute using the credentials of the user logged into that session.</p> <p>This means that any GUI-based application executed via a Windows task will not be visible from a remote desktop session. It will be visible only from console of the interactive session that exists on the system itself (that is, the session you would see from a monitor attached directly to the Windows machine or by logging in via a VM's host UI).</p> </div>
Create Console	If <a href="#">Interact with Desktop</a> is enabled; Specification for whether or not to allocate a new console for the process, rather than having it inherit one.
<b>Template Defaults</b>	This section contains template-specific default fields that will display for every Universal Task based on this template.
Runtime Directory	Directory from which the application should be executed. <a href="#">Variables</a> supported.
Environment Variables	<p>Allows you to enter environment variables needed by the program to run.</p> <p>To add a variable, click the <b>+</b> icon and enter a <b>Name</b> and <b>Value</b>. To delete a variable, select in the list of variables and click the <b>-</b> icon.</p> <p>You can add a maximum of 4,000 characters for the combined Names and Values of all variables. The variable is listed in the space underneath.</p>
<b>Result Processing Defaults</b>	This section contains assorted detailed information about result processing defaults for this task.
Exit Code Processing	<p>Specifies how the Controller should determine whether the executed command failed or completed successfully.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Success Exitcode Range</b> Command is considered completed successfully if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• <b>Failure Exitcode Range</b> Command is considered failed if its exit code falls within the range specified in the <a href="#">Exit Codes</a> field.</li> <li>• <b>Success Output Contains</b> Command is considered completed successfully if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• <b>Failure Output Contains</b> Command is considered failed if its output contains the text specified in the <a href="#">Scan Output For</a> field.</li> <li>• <b>Step Conditions (z/OS only)</b> Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the <a href="#">Step Conditions</a> tab (see <a href="#">Creating Step Conditions</a>).</li> </ul>
Output Type	<p>Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; type of output.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard Output (STDOUT)</li> <li>• Standard Error (STDERR)</li> <li>• File</li> <li>• Extension</li> </ul>
Content Type	<p>If <a href="#">Output Type</a> is Extension; Output type that the Result Processing mechanism should assume when evaluating the output.</p> <p>If the expected output is XML or JSON, it is valid to specify Text. However, when specifying XML or JSON, the output must be XML or JSON respectively; otherwise, the parsing will fail and the path expression evaluation will return no matches.</p>
Path Expression	<a href="#">XPath Expression</a> if <a href="#">Content Type</a> is XML, or the <a href="#">JsonPath Expression</a> if <a href="#">Content Type</a> is JSON, to be used when evaluating the Extension output.
Operator	If <a href="#">Output Type</a> is Extension; Condition Operator to evaluate in combination with the specified condition Value.
Value	If <a href="#">Output Type</a> is Extension; Condition Value to evaluate in combination with the specified condition Operator.

Strategy	If <a href="#">Content Type</a> is XML or JSON; Strategy to take when applying the condition Operator and Value against the Path Expression matches when Content Type is XML or JSON.
Auto Cleanup	Enables the auto cleanup of Extension output upon task instance completion or, if the task instance is within a workflow, when the top level workflow instance completes.
Scan Output For	Required if <a href="#">Exit Code Processing</a> = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for <a href="#">Exit Code Processing</a> )	Required if <a href="#">Output Type</a> = File; path and file name of the output file that should be scanned for the text in the <a href="#">Scan Output For</a> field.
Exit Codes	Required if <a href="#">Exit Code Processing</a> = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. The <a href="#">Task Automatic Output Retrieval Default</a> Universal Controller system property specifies the default value for this field. Options: <ul style="list-style-type: none"> <li>• None Do not attach any output to the task instance record.</li> <li>• Standard Output Attach all standard output.</li> <li>• Standard Error Attach standard error output.</li> <li>• File Attach the file specified in the <a href="#">Output File</a> field.</li> <li>• Standard Output/Error Attach all standard output and standard error output.</li> </ul> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.</p> </div>
Wait For Output	If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error, and <a href="#">Failure Only</a> is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error, and <a href="#">Wait For Output</a> is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. <ul style="list-style-type: none"> <li>• If a <b>Start Line</b> value is not specified, the default is 1.</li> <li>• If the <b>Start Line</b> value is -1, data will be retrieved starting at the end of the file.</li> </ul>
Number of Lines	If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the <a href="#">Retrieve Output Default Number Of Lines</a> Universal Controller system property.
Scan Text	If <a href="#">Automatic Output Retrieval</a> = Standard Output, Standard Error, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. The Controller will include the <b>Number of Lines</b> above and below the first line matched.  if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Output File (for <a href="#">Automatic Output Retrieval</a> )	Required if <a href="#">Automatic Output Retrieval</a> = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.

<b>Field Restrictions</b>	<p>This section lets you specify how fields in the <a href="#">Defaults</a> section of the Universal Template are displayed in Universal Tasks based on the template.</p> <p>The Field Restrictions section places the fields in the <a href="#">Default</a> section into five groups, as shown below: <a href="#">Agent</a>, <a href="#">Credential</a>, <a href="#">Environment Variables</a>, <a href="#">Exit Code Processing</a>, <a href="#">Automatic Output Retrieval</a>. All fields in a field group share the same restriction.</p> <p>The Restriction options are the same for each field group:</p> <ul style="list-style-type: none"> <li>• No Restriction No restrictions apply to any fields in this group. (This is the default selection for all field groups.)</li> <li>• Read Only All fields in the field group display as Read Only in the Universal Task.</li> <li>• Hidden All fields in the field group are hidden in the Universal Task.</li> </ul> <div style="border: 2px solid orange; padding: 10px; margin-top: 20px;"> <p><b>Note</b></p> <p>If the <a href="#">Preserve Value If Hidden</a> field is enabled for a hidden field:</p> <ul style="list-style-type: none"> <li>• The value of that field will not be reset upon an update.</li> <li>• Any variable related to that field will resolve to the field value.</li> </ul> </div>
Agent Fields	Restriction for the following Agent fields: Agent, Agent Variable, Agent Cluster, Agent Cluster Variable, and Cluster Broadcast.
Credential Fields	Restriction for the following Credential fields: Credentials, Credentials Variable, Run with Highest Privileges, and Runtime Directory.
Environment Variables Fields	Restriction for the following Environment Variable field: Environment Variables.
Exit Code Processing Fields	Restriction for the following Exit Code Processing fields: Exit Code Processing, Exit Codes, Output Type, Scan Output for, and Output File.
Automatic Output Retrieval Fields	Restriction for the following Automatic Output Retrieval Fields: Automatic Output Retrieval, Wait For Output, Failure Only, Start Line, Number of Lines, Scan Text, and Automatic Output File.
<b>Metadata</b>	This section contains <a href="#">Metadata</a> information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Extension Checksum	SHA-256 checksum for the Python Extension Archive.
Extension Version	Version of the Extension.
Extension API Level	API level that the Extension is compatible with.
Extension Requires Python	Python version(s) that the Python Extension Archive is guaranteed to be compatible with.
Extension Python Extra Paths	List of paths to add to the search path for Python modules.

Extension Zip Safe	When true, specifies the extension should run as a zip file. (default) When false, specifies the extension should run from a folder with the extracted extension and platform dependency wheel.
Extension Owner	Author of the Extension.
Extension Organization	Organization of the Author.
Extension Comments	(Any comments about the Extension.)
<b>Buttons</b>	This section identifies the buttons displayed above and below the Universal Template Details that let you perform various actions.
<b>Save</b>	Saves a new Universal Template record in the Controller database.
<b>Save &amp; New</b>	Saves a new Universal Template record in the Controller database and redisplay empty Details so that you can create another Universal Template.
<b>Save &amp; View</b>	Saves a new Universal Template record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new record.
<b>Update</b>	Updates the Universal Template record in the Controller database.
<b>Delete</b>	Delete the currently open Universal Template.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Universal Template Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this Universal Template.
<b>Tabs</b>	This section identifies the tabs across the top of the Universal Template Details that provide access to additional information about the template.
<b>Fields</b>	Allows you to create the user-defined fields that will display in the Universal Tasks based on this template.
<b>Commands</b>	If <a href="#">Template Type</a> is Extension; additional commands (operations) supported against a task instance (see <a href="#">Creating Commands</a> ,

### 19.3.3 Creating Universal Template Fields

Universal Template [Fields](#) are assigned variables to be used in the Universal Template script and placed in the Details of any Universal Task based on the Universal Template.

<b>Step 1</b>	From the <a href="#">Administration</a> navigation pane, select <b>Configuration &gt; Universal Templates</b> . The <a href="#">Universal Templates list</a> displays.
---------------	--

**Step 2**

Open an existing Universal Template for which you want to create Fields.

The screenshot shows the configuration interface for a Universal Template. The 'Fields' tab is active. The interface is divided into several sections:



- General:** Includes fields for Name (UIP Template 1), Extension (qaextension11), Description, Variable Prefix (qaextension11), and an Icon selection area.
- Universal Template Details:** Includes Template Type, Agent Type (Any), Send Extension Variables, and Always Cancel On Force Finish.
- Agent Defaults:** Includes Cluster, Agent, Credentials, and Run with Highest Privileges.
- UIP Template 1 Defaults:** Includes Runtime Directory and Environment Variables.
- Result Processing Defaults:** Includes Exit Code Processing, Success Exitcode Range, Exit Codes, and Automatic Output Retrieval.
- Field Restrictions:** Includes Agent Fields, Environment Variables Field, Automatic Output Retrieval Fields, and Credential Fields.

**Step 3**

Click the **Fields** tab to display the Fields list.

The screenshot shows the 'Fields' tab selected, displaying a table with 34 fields. The table columns are Name, Label, Type, Mapping, Restriction, Add To Default List View, Updated By, and Updated.

Name	Label	Type	Mapping	Restriction	Add To Default List View	Updated By	Updated
text_no_res	Text No Restriction	Text	Text Field 1	No Restriction	No	Imathews	2021-05-21 14:09:56 -0400
text_output_only	Text Output Only	Text	Text Field 2	Output Only	No	Imathews	2021-05-21 14:09:56 -0400
large_text_no_res	Large Text	Text	Large Text Field 1	No Restriction	No	Imathews	2021-05-21 14:09:57 -0400
large_text_output_only	Large Text Output Only	Text	Large Text Field 2	Output Only	No	Imathews	2021-05-21 14:09:57 -0400
json_text_no_res	JSON	Text	Text Field 19	No Restriction	No	Imathews	2021-05-21 14:09:57 -0400
json_text_output_only	JSON Output Only	Text	Text Field 17	Output Only	No	Imathews	2021-05-21 14:09:57 -0400
yaml_text_no_res	YAML	Text	Text Field 4	No Restriction	No	Imathews	2021-05-21 14:09:57 -0400
yaml_text_output_only	YAML Output Only	Text	Text Field 18	Output Only	No	Imathews	2021-05-21 14:09:57 -0400
integer_no_res	Integer No Restriction	Integer	Integer Field 1	No Restriction	No	Imathews	2021-05-21 14:09:57 -0400
sleep_cycles_output_only	Sleep Cycles Output Only	Integer	Integer Field 7	Output Only	No	Imathews	2021-05-21 14:09:57 -0400
integer_output_only	Integer Output Only	Integer	Integer Field 2	Output Only	No	Imathews	2021-05-21 14:09:57 -0400
float_no_res	Float No Restriction	Float	Float Field 1	No Restriction	No	Imathews	2021-05-21 14:09:57 -0400
float_output_only	Float Output Only	Float	Float Field 4	Output Only	No	Imathews	2021-05-21 14:09:57 -0400
boolean_no_res_custom	Boolean No Restriction Custom	Boolean	Boolean Field 3	No Restriction	No	Imathews	2021-05-21 14:09:57 -0400
boolean_no_res_tf	Boolean No Restriction T/F	Boolean	Boolean Field 1	No Restriction	No	Imathews	2021-05-21 14:09:57 -0400
boolean_no_res_10	Boolean No Restriction 1/0	Boolean	Boolean Field 2	No Restriction	No	Imathews	2021-05-21 14:09:57 -0400
boolean_output_only_tf	Boolean Output Only T/F	Boolean	Boolean Field 4	Output Only	No	Imathews	2021-05-21 14:09:57 -0400

<p><b>Step 4</b></p>	<p>Click the  button to display Field Details for a new Field.</p> <div data-bbox="432 304 1549 1274" style="border: 1px solid black; padding: 5px;"> <p><b>Field Details</b> <span style="float: right;">- [ ] x</span></p> <p><b>Field</b> <span style="margin-left: 20px;">• Choices</span></p> <hr/> <p><b>General</b></p> <p>Name * <input type="text"/> <span style="float: right;">Label * <input type="text"/></span></p> <p>Hint <input type="text"/></p> <p>Add To Default List View <input type="checkbox"/></p> <p><b>Field Details</b></p> <p>Type <input type="text" value="Text"/> <span style="float: right;">Mapping <input type="text" value="Text Field 5"/></span></p> <p>Text Type <input type="text" value="Plain"/></p> <p>Default Value <input type="text"/></p> <p>Restriction <input checked="" type="radio"/> No Restriction <input type="radio"/> Output Only</p> <p><b>Validation</b></p> <p>Required <input type="checkbox"/></p> <p>Require If Field <input type="text" value="-- None --"/></p> <p>Show If Field <input type="text" value="-- None --"/></p> <p>Length <input type="text"/></p> <p><b>Form Layout</b></p> <p>Start Row <input type="checkbox"/> <span style="float: right;">Column Span <input type="text" value="1"/></span></p> <p>End Row <input type="checkbox"/></p> </div>
<p><b>Step 5</b></p>	<p>Enter / select Details for a new Field, using the <a href="#">field descriptions</a> below as a guide.</p> <ul style="list-style-type: none"> <li>• Required fields display an asterisk ( * ) after the field name.</li> <li>• Default values for fields, if available, display automatically.</li> </ul>
<p><b>Step 6</b></p>	<p>Click a  button. The Field is added to the list of Universal Template Fields.</p> <p>If you click the <b>Save</b> or <b>Save &amp; View</b> button after creating a Choice Field (Type = Choice), the Choices tab (under which is an empty Choices list) is enabled, and an empty <a href="#">Choice Details</a> automatically displays, which lets you create your first Choice.</p> <p>If you click the <b>Save &amp; New</b> button after creating a Choice Field, in order to create one or more other Fields, you will have to manually open that Choice Field, click the enabled Choices tab, and then click the <b>New</b> button to create your first Choice.</p>

### 19.3.3.1 Field Details Field Descriptions

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

Field Name	Description
<b>General</b>	<b>This section contains general information about the Field.</b>
Name	Name of this Field in the Controller database. (Name is used as the suffix for the <a href="#">Universal Template Variable</a> based on this Field.) <ul style="list-style-type: none"> <li>• Maximum 28 characters.</li> <li>• Name must begin with an alphabetic character and can consist of: alphabets (a-z, A-Z), numerics 0-9, _ (underscore).</li> <li>• White spaces are not permitted.</li> <li>• Names are not case-sensitive.</li> </ul>
Label	Name of this Field to be displayed in the Controller user interface.
Hint	<a href="#">Field hint</a> for this Field in the Controller user interface.
Add To Default List View	If enabled; Specification that the <a href="#">Label</a> of this Field will display, by default, in the list of Universal Tasks based on this template.
<b>Field Details</b>	<b>This section contains detailed information about the Field.</b>
Type	Field type for this Field. <p>Options:</p> <ul style="list-style-type: none"> <li>• Text (default)</li> <li>• Integer</li> <li>• Boolean</li> <li>• Choice</li> <li>• Credential</li> <li>• Script</li> <li>• Array</li> <li>• Float</li> <li>• SAP Connection</li> <li>• Database Connection</li> </ul>
Text Type	For Extension-based Universal Templates only; Content type of Text field: <ul style="list-style-type: none"> <li>• Plain</li> <li>• JSON</li> <li>• YAML</li> </ul>
Restriction	If <a href="#">Type</a> is Text, Integer, or Boolean: <p>Options:</p> <ul style="list-style-type: none"> <li>• No Restriction</li> <li>• Output Only</li> </ul>

<p>Mapping</p>	<p>Field, from a pool of available fields provided for use in a Universal Template, that this Field is mapped to.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• If <b>Type</b> is Text: Text Field 1 - Text Field 20, Large Text Field 1 - Large Text Field 4.</li> <li>• If <b>Type</b> is Integer: Integer Field 1 - Integer Field 10.</li> <li>• If <b>Type</b> is Boolean: Boolean Field 1 - Boolean Field 15.</li> <li>• If <b>Type</b> is Choice: Choice Field 1 - Choice Field 15.</li> <li>• If <b>Type</b> is Credential: Credential Field 1 - Credential Field 6.</li> <li>• If <b>Type</b> is Script: Script Field 1 - Script Field 2.</li> <li>• If <b>Type</b> is Array: Array Field 1 - Array Field 4.</li> <li>• If <b>Type</b> is Float: Float Field 1 - Float Field 4.</li> <li>• If <b>Type</b> is SAP Connection: Sap Connection Field 1.</li> <li>• If <b>Type</b> is Database Connection: Database Connection Field 1.</li> </ul> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>A field (from the pool of fields provided for use in a Universal Template) that is mapped to a Universal Template Field is not available to be mapped to any other Universal Template Field.</p> </div>
<p>Default Value</p>	<p>If <b>Type</b> is Text, Integer, Choice, or Float; Default value for this Field. (Text and Choice: Maximum length = 255; Large Text: Maximum Length = 25000, Integer: Maximum length = 11; Float: maximum length = 17.)</p> <p>Also if <b>Type</b> is Choice; In order for a <b>Choice</b> to display as the default for this Field in the Universal Task Details, Default Value must be the Choice <b>Value</b>, not the Choice <b>Label</b>.</p> <p>If <b>Type</b> is Boolean; Specification (a check mark) that the Yes value for this field is the default.</p> <p>If <b>Type</b> is Credential; Default <b>Credential</b> to be used for this Universal Template Field. You can select a Credential from the Default Value drop-down list or click the <b>Details icon</b> next to the Default Value field to create a new Credential.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>Since only Resolvable Credentials can be embedded in a Universal Template script or used by a Universal Extension, only Resolvable Credentials display in the Default Value drop-down list for a Credential. If you click the Details icon to create a new Credential, Resolvable is pre-selected for the Type field in the Credential Details and cannot be changed.</p> </div> <p>If <b>Type</b> is Script; Default <b>Script</b> to be used for this Universal Template Field. You can select a Script from the Default Value drop-down list or click the <b>Details icon</b> next to the Default Value field to create a new Script.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>Since only Data Scripts can be embedded in a Universal Template script or used by a Universal Extension, only Data Scripts display in the Default Value drop-down list for a Script. If you click the Details icon to create a new Script, Data is pre-selected for the Type field in the Script Details and cannot be changed.</p> </div> <p>If <b>Type</b> is Array; You can specify the default array variables, which can be assigned to the appropriate field while creating the task.</p> <p>If <b>Type</b> is SAP Connection; Default SAP Connection to be used for this Universal Template Field. You can select an SAP Connection from the Default Value drop-down list or click the <b>Details icon</b> next to the Default Value field to create a new SAP Connection.</p> <p>If <b>Type</b> is Database Connection; Default Database Connection to be used for this Universal Template Field. You can select a Database Connection from the Default Value drop-down list or click the <b>Details icon</b> next to the Default Value field to create a new Database Connection.</p>

Boolean Value Type	<p>If <b>Type</b> is Boolean: Type of Boolean value for this Field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• true/false (default)</li> <li>• 1/0</li> <li>• Custom</li> </ul>
Yes Value:	If <b>Boolean Value Type</b> is Custom; Boolean Yes value for this Field. (Maximum length = 255 characters).
No Value:	If <b>Boolean Value Type</b> is Custom; Boolean No value for this Field. (Maximum length = 255 characters).
Choice Sort Option	<p>If <b>Type</b> is Choice; Specification for how Choices will be listed in the Choice field drop-down list in the Universal Task Details.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Sequence: Choices will be displayed in the sequence they were created. You can change this sequence manually on the <a href="#">Choices list</a>.</li> <li>• Label: Choices will be displayed alphabetically by <a href="#">Label</a>.</li> </ul> <p>Default is Sequence.</p>
Allow Empty Choice	If <b>Type</b> is Choice; Specification for whether or not an empty (blank) option is available for this Choice field in any Universal Task based on this template, allowing the user to clear the value of this field.
Allow Multiple Choices	If <b>Type</b> is Choice; Specification for whether or not more than one choice can be selected at a time. When multiple choices are selected, the built-in field variable will resolve to a comma-delimited String of choice values.
Name Title	If <b>Type</b> is Array; Option to change the default <b>Name</b> column for the Array field on any <a href="#">Universal Task</a> based on this template to any other column title (for example, Customer Name).
Value Title	If <b>Type</b> is Array; Option to change the default Value column for the Array field on any <a href="#">Universal Task</a> based on this template to any other column title (for example, Customer ID).
Restriction	If <b>Type</b> is Text, Integer, Boolean, or Float; Specification for whether or not to place an Output Only restriction on the field, which will render it as read-only on a Universal Task Instance Details but not shown on the Universal Task Details.
Preserve Output On Re-run	If <a href="#">Restriction</a> specifies Output Only; Specification for whether or not an Output Only field should preserve its value on a Re-run instead of being cleared.
Extension Status	<p>If <a href="#">Restriction</a> specifies Output Only; Specification for whether or not an Output Only field is designated as Extension Status for a task instance.</p> <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p>Only a single field can be designated as an Extension Status.</p> </div>
Dynamic Choice	If <b>Type</b> is Choice; Specification that the field will request its choices dynamically from the Extension.
Dependent Fields	If <a href="#">Dynamic Choice</a> is specified; Fields that should be included when requesting the dynamic choices.
<b>Validation</b>	<b>This section contains validation information about the Field.</b>

<p>Required</p>	<p>If <b>Type</b> is Text, Integer, Credential, Float, SAP Connection, Database Connection or Script; Specification for whether this Field in the template is required (checked) or optional (not checked). If it is required, it will display in <b>boldface</b> in any Universal Tasks based on this template.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>If you modify a Universal Template Field to add a Required condition, review and assign an appropriate field value to any Universal Tasks that are no longer in compliance to avoid a Start Failure.</p> </div>												
<p>Require If Field</p>	<p>If <b>Required</b> is not checked and a <b>Show If Field</b> is not specified; Specification that this Field in the template will be required in any Universal Tasks based on this template if the Choice Field (Choice Field 1-15) or the Boolean Field (Boolean Field 1-15) selected as the Require If Field has a value corresponding to the value(s) defined in the Require If Field Value(s) field.</p> <p>The Require If Field Value(s) field is not available until you make a Require If Field selection.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None --</li> <li>• Boolean Field 1 - Boolean Field 15.</li> <li>• Choice Field 1 - Choice Field 15.</li> </ul> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>If you modify a Universal Template Field to add or augment a Require If Field condition, review and assign an appropriate field value to any Universal Tasks that are no longer in compliance to avoid a Start Failure.</p> </div>												
<p>Require If Field Value(s)</p>	<p>If <b>Require If Field</b> is a Choice field, Require If Field Value(s) is a comma-separated list of Choice values.</p> <p>For example:</p> <table border="1" data-bbox="194 1191 1532 1630"> <thead> <tr> <th style="text-align: left;">Require If Field Value(s)</th> <th style="text-align: left;">Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Field is required if the Require If Field has a choice value of 1 selected.</td> </tr> <tr> <td>1,2</td> <td>Field is required if the Require If Field has a choice value of 1 or 2 selected.</td> </tr> <tr> <td></td> <td>Field is required if the Require If Field has the empty choice selected.</td> </tr> <tr> <td>,1</td> <td>Field is required if the Require If Field has the empty choice selected or a choice value of 1 selected.</td> </tr> <tr> <td>,1,2</td> <td>Field is required if the Require If Field has the empty choice selected or a choice value of 1 or 2 selected.</td> </tr> </tbody> </table> <p>If <b>Require If Field</b> is a Boolean field, Require If Field Value(s) is either true or false.</p>	Require If Field Value(s)	Description	1	Field is required if the Require If Field has a choice value of 1 selected.	1,2	Field is required if the Require If Field has a choice value of 1 or 2 selected.		Field is required if the Require If Field has the empty choice selected.	,1	Field is required if the Require If Field has the empty choice selected or a choice value of 1 selected.	,1,2	Field is required if the Require If Field has the empty choice selected or a choice value of 1 or 2 selected.
Require If Field Value(s)	Description												
1	Field is required if the Require If Field has a choice value of 1 selected.												
1,2	Field is required if the Require If Field has a choice value of 1 or 2 selected.												
	Field is required if the Require If Field has the empty choice selected.												
,1	Field is required if the Require If Field has the empty choice selected or a choice value of 1 selected.												
,1,2	Field is required if the Require If Field has the empty choice selected or a choice value of 1 or 2 selected.												
<p>Show If Field</p>	<p>If <b>Required</b> is not checked and a <b>Require If Field</b> is not specified; Specification that this Field in the template will be visible in any Universal Tasks based on this template if the Choice Field (Choice Field 1-15) or the Boolean Field (Boolean Field 1-15) selected as the Show If Field has a value corresponding to the value(s) defined in the Show If Field Value(s) field.</p> <p>The Show If Field Value(s) field is not available until you make a Show If Field selection.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -- None --</li> <li>• Boolean Field 1 - Boolean Field 15.</li> <li>• Choice Field 1 - Choice Field 15.</li> </ul>												

<p>Show If Field Value(s)</p>	<p>If <a href="#">Show If Field</a> is a Choice field, the Show If Field Value(s) is a comma-separated list of Choice values. For example:</p> <table border="1" data-bbox="193 320 1538 757"> <thead> <tr> <th data-bbox="193 320 724 405">Show If Field Value(s)</th> <th data-bbox="724 320 1538 405">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="193 405 724 465">1</td> <td data-bbox="724 405 1538 465">Field is visible if the Show If Field has a choice value of 1 selected.</td> </tr> <tr> <td data-bbox="193 465 724 526">1,2</td> <td data-bbox="724 465 1538 526">Field is visible if the Show If Field has a choice value of 1 or 2 selected.</td> </tr> <tr> <td data-bbox="193 526 724 586"></td> <td data-bbox="724 526 1538 586">Field is visible if the Show If Field has the empty choice selected.</td> </tr> <tr> <td data-bbox="193 586 724 674">,1</td> <td data-bbox="724 586 1538 674">Field is visible if the Show If Field has the empty choice selected or a choice value of 1 selected.</td> </tr> <tr> <td data-bbox="193 674 724 757">,1,2</td> <td data-bbox="724 674 1538 757">Field is visible if the Show If Field has the empty choice selected or a choice value of 1 or 2 selected.</td> </tr> </tbody> </table> <p>If <a href="#">Show If Field</a> is a Boolean field, the Show If Field Value(s) is either true or false.</p>	Show If Field Value(s)	Description	1	Field is visible if the Show If Field has a choice value of 1 selected.	1,2	Field is visible if the Show If Field has a choice value of 1 or 2 selected.		Field is visible if the Show If Field has the empty choice selected.	,1	Field is visible if the Show If Field has the empty choice selected or a choice value of 1 selected.	,1,2	Field is visible if the Show If Field has the empty choice selected or a choice value of 1 or 2 selected.
Show If Field Value(s)	Description												
1	Field is visible if the Show If Field has a choice value of 1 selected.												
1,2	Field is visible if the Show If Field has a choice value of 1 or 2 selected.												
	Field is visible if the Show If Field has the empty choice selected.												
,1	Field is visible if the Show If Field has the empty choice selected or a choice value of 1 selected.												
,1,2	Field is visible if the Show If Field has the empty choice selected or a choice value of 1 or 2 selected.												
<p>Require If Visible</p>	<p>If <a href="#">Show If Field</a> is not -- None --; If selected, specification that the Field is required if it is visible (see <a href="#">Show If Field</a>).</p> <div data-bbox="193 927 1538 1115" style="border: 1px solid orange; padding: 5px;"> <p><b>Note</b></p> <p>If you modify a Universal Template Field to add a Require If Visible condition, review and assign an appropriate field value to any Universal Tasks that are no longer in compliance to avoid a Start Failure.</p> </div>												
<p>No Space If Hidden</p>	<p>If <a href="#">Show If Field</a> is not -- None --; If selected, specification that a space should not be reserved in place of the hidden field.</p>												
<p>Preserve Value If Hidden</p>	<p>If <a href="#">Show If Field</a> is not -- None --; If selected, specification that the value of this field should be preserved if the field is hidden.</p> <div data-bbox="193 1308 1538 1532" style="border: 1px solid orange; padding: 5px;"> <p><b>Note</b></p> <p>A Field with Preserve Value If Hidden = true will be validated even if the Field is hidden.</p> <p>Also, if a Field's Show If Field or Require If Field specifies a field (for example, Boolean Field 1) that has Preserve Value If Hidden = true, when validating whether the Field is visible or required, Boolean Field 1's value is considered visible.</p> </div>												
<p>Length</p>	<p>If <a href="#">Type</a> is Text or Integer; Length of this Field.</p> <p>Maximum Lengths:</p> <ul style="list-style-type: none"> <li>• Text = 255</li> <li>• Large Text = 25000</li> <li>• Integer = 11</li> </ul>												
<p>Minimum</p>	<p>If <a href="#">Type</a> is Integer; Minimum value for this field.</p>												
<p>Maximum</p>	<p>If <a href="#">Type</a> is Integer; Maximum value for this field.</p>												

<b>Form Layout</b>	<p><b>This section contains information about the location of this Field in the Details of Universal Tasks based on this template.</b></p> <div style="border: 1px solid orange; padding: 10px; margin: 10px 0;"> <p><b>Note</b></p> <p><b>All user-defined Fields in a Universal Template will be located between the Credentials Variable and Runtime Directory fields in the Details section of Universal Tasks based on this template.</b></p> </div>
Start Row	If enabled; Specification that this Field will start a new row.
End Row	If enabled; Specification that this Field will end the current row.
Column Span	<p>Number of columns (width) in the Universal Task Details for this Field.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• 1</li> <li>• 2</li> <li>• 3</li> </ul> <p>Default is 1.</p>
Sequence	<p>For existing Fields only; System-defined; Sequence of this Field among all user-defined Universal Template Fields to be displayed in the Universal Task Details. Starting sequence is 0 for the first defined Field.</p> <div style="border: 1px solid orange; padding: 10px; margin: 10px 0;"> <p><b>Note</b></p> <p>You can change the Sequence of user-defined Universal Template Fields by dragging them to new locations on the <a href="#">Fields list</a>.</p> </div>
<b>Metadata</b>	<b>This section contains <a href="#">Metadata</a> information about this record.</b>
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
<b>Buttons</b>	<b>This section identifies the buttons displayed above and below the Field Details that let you perform various actions.</b>
<b>Save</b>	Saves a new Field record in the Controller database.
<b>Save &amp; New</b>	Saves a new Field record in the Controller database and redisplay empty Details so that you can create another Field.
<b>Save &amp; View</b>	Saves a new Field record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new Field.
<b>Update</b>	Updates the Field record in the Controller database.

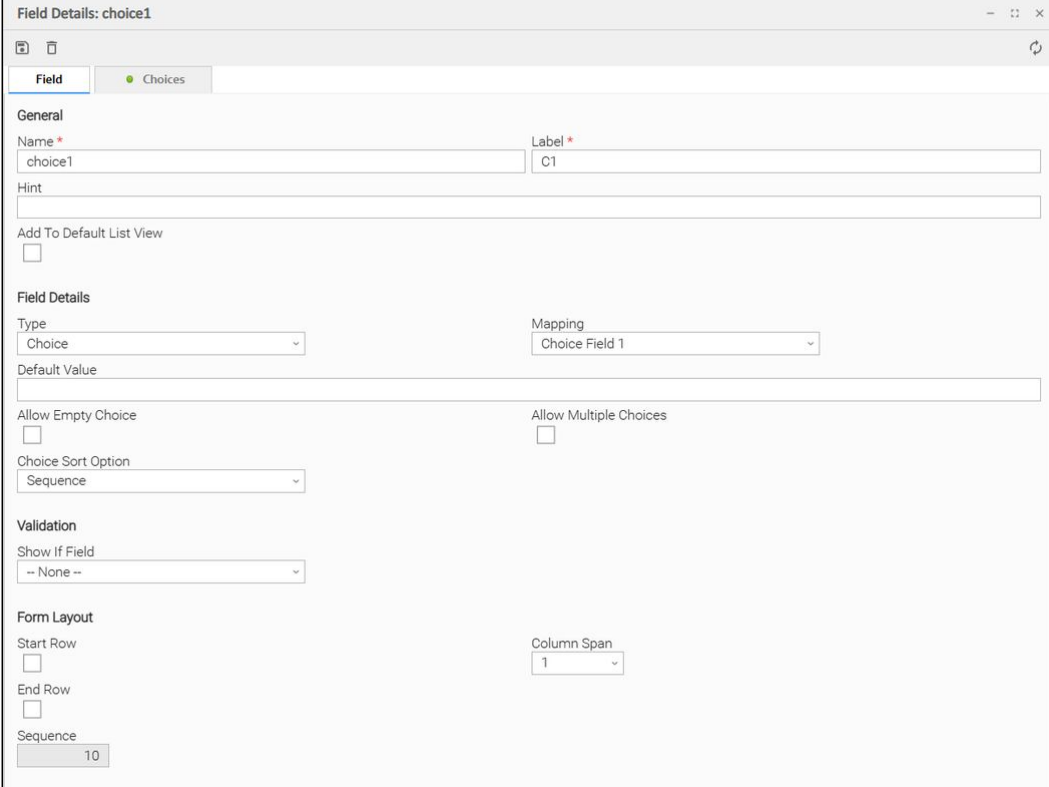
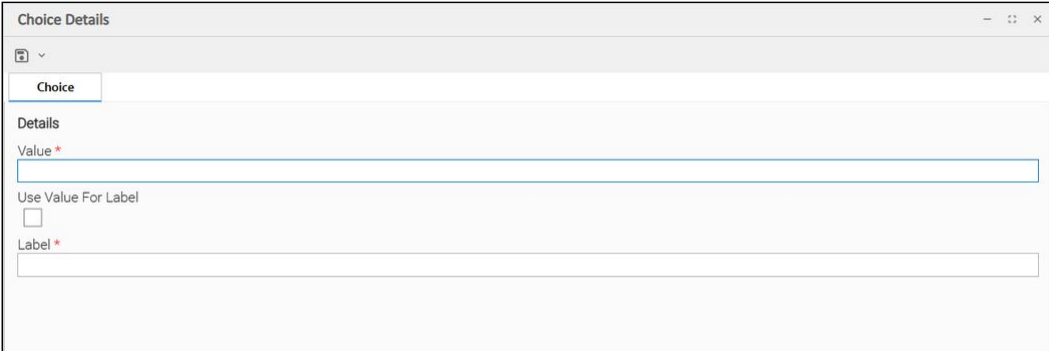
<p><b>Delete</b></p>	<p>Delete the currently open Field.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>You cannot delete a field if it is the only field in the Template.</p> </div>
<p><b>Refresh</b></p>	<p>Refreshes any dynamic data displayed in the Field Details.</p>
<p><b>Close</b></p>	<p>Closes the Field Details.</p>
<p><b>Tabs</b></p>	<p><b>This section identifies the tabs across the top of the Field Details that provide access to additional information about the Field.</b></p>
<p><b>Choices</b></p>	<p>If <a href="#">Type</a> is Choice; Allows you to define the Choices for this Field in the template.</p>

### 19.3.4 Creating Universal Template Field Choices

If you created a Choice Field ([Type](#) = Choice) for a Universal Template, you must create Choices for that Choice Field that will display in a drop-down list in all Universal Tasks based on this Universal Template.

- If you click the **Save** button after creating the Choice Field, the Choices tab (under which is an empty Choices list) is enabled, and an empty [Choice Details](#) automatically displays, which lets you create your first Choice.
- If you click the **Save & New** button after creating a Choice Field, so that you can immediately create one or more other Fields, you will have to manually open that Choice Field, click the enabled Choices tab, and then click the **New** button to create your first Choice.

The following procedure assumes that you have created a Choice Field but not yet created any Choices for it.

<p><b>Step 1</b></p>	<p>On the <a href="#">Fields list</a> for the Universal Template, <a href="#">open</a> the Choice Field (Type = Choice) whose Choices you want to create.</p> 
<p><b>Step 2</b></p>	<p>Click the <b>Choices</b> tab to display an empty Choices list.</p>
<p><b>Step 3</b></p>	<p>Click <b>New</b> to display Choice Details for a new Choice.</p> 
<p><b>Step 4</b></p>	<p>Enter Details for a new Choice Field, using the <a href="#">field descriptions</a> below as a guide.</p>
<p><b>Step 5</b></p>	<p>Click a <b>Save</b> button. Each Choice that you define is added to the Choices list.</p>

### 19.3.4.1 Choice Details Field Descriptions

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

Field Name	Description
<b>General</b>	This section contains general information about the Field.
Value	Value of this Choice. (Maximum length = 255 characters.)
Use Value For Label	If the <a href="#">Value</a> field value is 50 characters or less; Use the <a href="#">Value</a> field value as the <a href="#">Label</a> field value (which is a maximum 50 characters).
Label	If <a href="#">Use Value For Label</a> is not checked; Name that will display for this Choice in the drop-down list on a Universal Task. (Maximum = 50 characters.)
Sequence	For existing Choices only; System-defined sequence of this Choice among all Choices defined for this Field. Starting sequence is 0 for the first defined Choice.  <div style="border: 1px solid orange; padding: 10px;"> <p><b>Note</b></p> <p>If you select Sequence in the <a href="#">Choice Sort Option</a> field in the Details for this Choice Field, you can sort the Choices by clicking and dragging them to any position on the <a href="#">Choices List</a>.</p> <p>In the Details of any Universal Task based on this Universal Template, the Labels for these Choices will display in the Choice Field drop-down list in the order you select.</p> </div>
<b>Metadata</b>	This section contains <a href="#">Metadata</a> information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
<b>Buttons</b>	This section identifies the buttons displayed above the Choice Details that let you perform various actions.
<b>Save</b>	Saves a new Choice record in the Controller database.
<b>Save &amp; New</b>	Saves a new Choice record in the Controller database and redisplay empty Details so that you can create another Choice.
<b>Save &amp; View</b>	Saves a new Choice record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new Choice.
<b>Update</b>	Updates the Choice record in the Controller database.

<p><b>Delete</b></p>	<p>Deletes the currently open Choice.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>You cannot delete a Choice if it is the only Choice for the Field.</p> </div>
<p><b>Refresh</b></p>	<p>Refreshes any dynamic data displayed in the Choice Details.</p>
<p><b>Close</b></p>	<p>Closes the Choice Details.</p>

### 19.3.5 Creating Commands

Commands allow you to define additional operations against a task instance.

**Command Details** - ☐ ×

☰

**Command**

---

**Details**

Name \*

Label \*

Supported Status(es) \*

Dependent Fields

Timeout (Seconds)

Execution Option

#### 19.3.5.1 Command Details Field Descriptions

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

Field Name	Description
Name	Unique name of this command, adhering to the same naming convention as a Universal Template field name.
Label	User-friendly display name for the command, to be displayed within the client.
Supported Status(es)	Task instance status(es) that the dynamic command should be enabled for.
Dependent Fields	Universal Template fields (if any) that are required by the command. The values of those fields are included in the command request.

Field Name	Description
Timeout (Seconds)	Optional command timeout, in seconds, if the command requires longer than the System-level default of 60 seconds.  If the Controller (server) does not receive a command response from the Extension prior to the timeout being reached, a timeout message will be sent to the client (user interface), and displayed in the console. However, the server-side handling of the command response, like the persistence of command output, will still be handled by the server after the timeout occurs.
Execution Option	Specification for whether the command runs out-of-process execution or in-process execution.  Options: <ul style="list-style-type: none"> <li>• Out Of Process</li> <li>• In Process</li> </ul> Default is Out Of Process.
Asynchronous	If <a href="#">Execution Option</a> is In Process; Specification for whether the command runs synchronously or asynchronously.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Field Details that let you perform various actions.
<b>Save</b>	Saves a new Field record in the Controller database.
<b>Save &amp; New</b>	Saves a new Field record in the Controller database and redisplay empty Details so that you can create another Field.
<b>Save &amp; View</b>	Saves a new Field record in the Controller database and continues to display that record.
<b>Close</b>	Close the Command Details.

### 19.3.5.2 Command Permission

Users must have **Universal** (or **ALL**) command permission and **Read** permission for the Universal Task Instance, assigned by the **Task Instance** permission type, for authorization to execute a Universal dynamic command.

### 19.3.5.3 Command Output

Optionally, a dynamic command can return output in the response, which would be displayed immediately to the user who issued the command.

A user can view the output generated by the command later by going to the **Task Instance > Output** tab.

The **Type** will show as **COMMAND**, and to allow for better correlation, a new **Command Name** field will display the label of the command that generated the output.

## 19.3.6 Creating Event Templates

Universal Events are administrator-defined events with administrator-defined attributes.

Universal Events can be defined:

<b>Globally</b>	In a <a href="#">Universal Event Template</a> .
<b>Locally</b>	As part of a Universal Extension-based Universal Template.

If the Universal Extension can generate a non-global Universal Event, you must define the Universal Event here to allow the event to be monitored by an Universal Monitor.

**Note**

When publishing Universal Events through an Extension-based Universal Task Publisher, take into consideration both Universal Controller server and Database server sizings.

### 19.3.6.1 Event Template Details Field Descriptions

The following table describes the fields and buttons that display in the Event Template Details.

Field Name	Description
Name	Name of this Universal Event.
Label	User-friendly display name for this event, to be displayed within the client. The Label must be unique for Global Events and unique within Local Events..
Description	Description of this event.

Field Name	Description
Time To Live	<p>Default value for the length of time, in minutes, that the Universal Event data is valid. This value can be unspecified (null).</p> <p>The Time To Live value can be overridden in the published event.</p> <p>If the Time To Live does not exist in the published event, then this value, if defined, will be used.</p> <p>If neither value exists, the Time To Live is 0, which means the event is deleted as soon as it is published.</p>
Unmapped Attributes Policy	<p>Defines how unmapped/unknown attributes that are in the published event are handled.</p> <ul style="list-style-type: none"> <li>• Prohibit Universal Event If the published event has any attributes that have not been defined in the template, the publish is rejected and not allowed.</li> <li>• Include Attributes Any extra attributes will be allowed and passed through as variables.</li> <li>• Exclude Attributes Any extra attributes are excluded and ignored. They will not be passed along as variables.</li> </ul>
Attributes	<p>Name, Label, and Type of each attribute.</p> <ul style="list-style-type: none"> <li>• Name Unique name for this attribute.</li> <li>• Label User-friendly display name for this attribute, to be displayed within the client.</li> <li>• Type Type of attribute:                             <ul style="list-style-type: none"> <li>• Text</li> <li>• Integer</li> <li>• Float</li> <li>• Boolean</li> </ul> </li> </ul>
System Event	<p>Indication if this type of event is a System Event.</p>

### 19.3.6.2 Auditing Universal Events

The [Universal Event Extension Publish Audit](#) lets you specify whether or not an audit record is generated for each Universal Event published through an Extension-based Universal Task Instance.

(The [Universal Event Web Service Publish Audit](#) lets you specify whether or not an audit record is generated for each Universal Event published through the [Universal Event Web Services](#).)

#### Note

Enabling these audit properties can generate a large quantity of audit.

## 19.4 Copying Universal Templates

### 19.4.1 Overview

You can make copies of all Universal Controller records, including Universal Templates, using the standard method for [Copying a Record](#): selecting **Insert** on the [Action menu](#).

However, you also can use the Copy action on the Universal Template [Action menu](#) or the Copy button in the Universal Template Details.

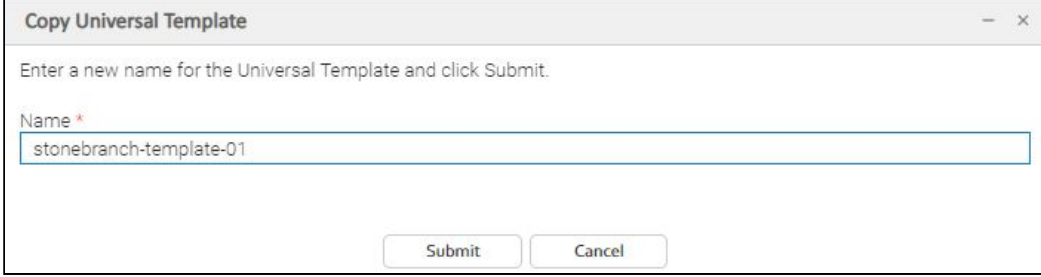
Copying a Universal Template will copy the following:

- Universal Template record.
- Universal Template Field records for the Universal Template parent record.
- Universal Template Field Choice records for the Choice type Universal Template Field parent records.

### 19.4.2 Copying One or More Universal Templates from a Universal Templates List

<p><b>Step 1</b></p>	<p>From the <a href="#">Administration</a> navigation pane, select <b>Configuration&gt; Universal Templates</b> to display the Universal Templates list.</p>
<p><b>Step 2</b></p>	<p>Locate the Universal Template(s) you want to copy (see <a href="#">Filtering</a>).</p>
<p><b>Step 3</b></p>	<p>Copy the Universal Template(s):</p> <p><b>Copy One Universal Template</b></p> <ol style="list-style-type: none"> <li>1. Right-click the <b>Universal Template Name</b>.</li> <li>2. On the <a href="#">Action menu</a>, select <b>Copy</b>. A Copy Universal Template pop-up dialog displays.</li> </ol> <div data-bbox="509 1144 1551 1420" data-label="Image"> </div> <ol style="list-style-type: none"> <li>3. Enter a new name for the Universal Template.</li> <li>4. Click <b>Submit</b> to create a copy of the Universal Template.</li> </ol> <p><b>Copy Multiple Universal Templates</b></p> <ol style="list-style-type: none"> <li>1. Ctrl-Click the Universal Templates you want to copy.</li> <li>2. Right-click any of the selected Universal Templates.</li> <li>3. On the <a href="#">Action menu</a>, select <b>Copy</b>.</li> <li>4. On the Confirmation pop-up that displays, click <b>OK</b>. The copied Universal Templates are added to the list, with - <b>Copy</b> added as a suffix to the Universal Template Name for each Universal Template. If a Universal Template with that - <b>Copy</b> name already exists, another copy is not created.</li> </ol>

### 19.4.3 Copying a Universal Template from the Universal Template Details

<p><b>Step 1</b></p>	<p>Select a Universal Template from the Universal Template list. The <a href="#">Universal Template Details</a> for that Universal Template displays.</p>
<p><b>Step 2</b></p>	<p>Either:</p> <ul style="list-style-type: none"> <li>• Click the <b>Copy</b> button.</li> <li>• Right-click the Details to display the <a href="#">Action menu</a>, and then click <b>Copy</b>.</li> </ul> <p>A Copy Universal Template pop-up dialog displays.</p> 
<p><b>Step 3</b></p>	<p>Enter a new name for the Universal Template.</p>
<p><b>Step 4</b></p>	<p>Click <b>Submit</b> to create a copy of the Universal Template.</p>

### 19.4.4 Copy Permissions

To copy a Universal Template, you must have either the [ops\\_admin](#) or [ops\\_universal\\_template\\_admin](#) role.

## 20 Universal Event Templates

### 20.1 Universal Event Templates

Universal Events are administrator-defined events with administrator-defined attributes.

Universal Events can be defined:

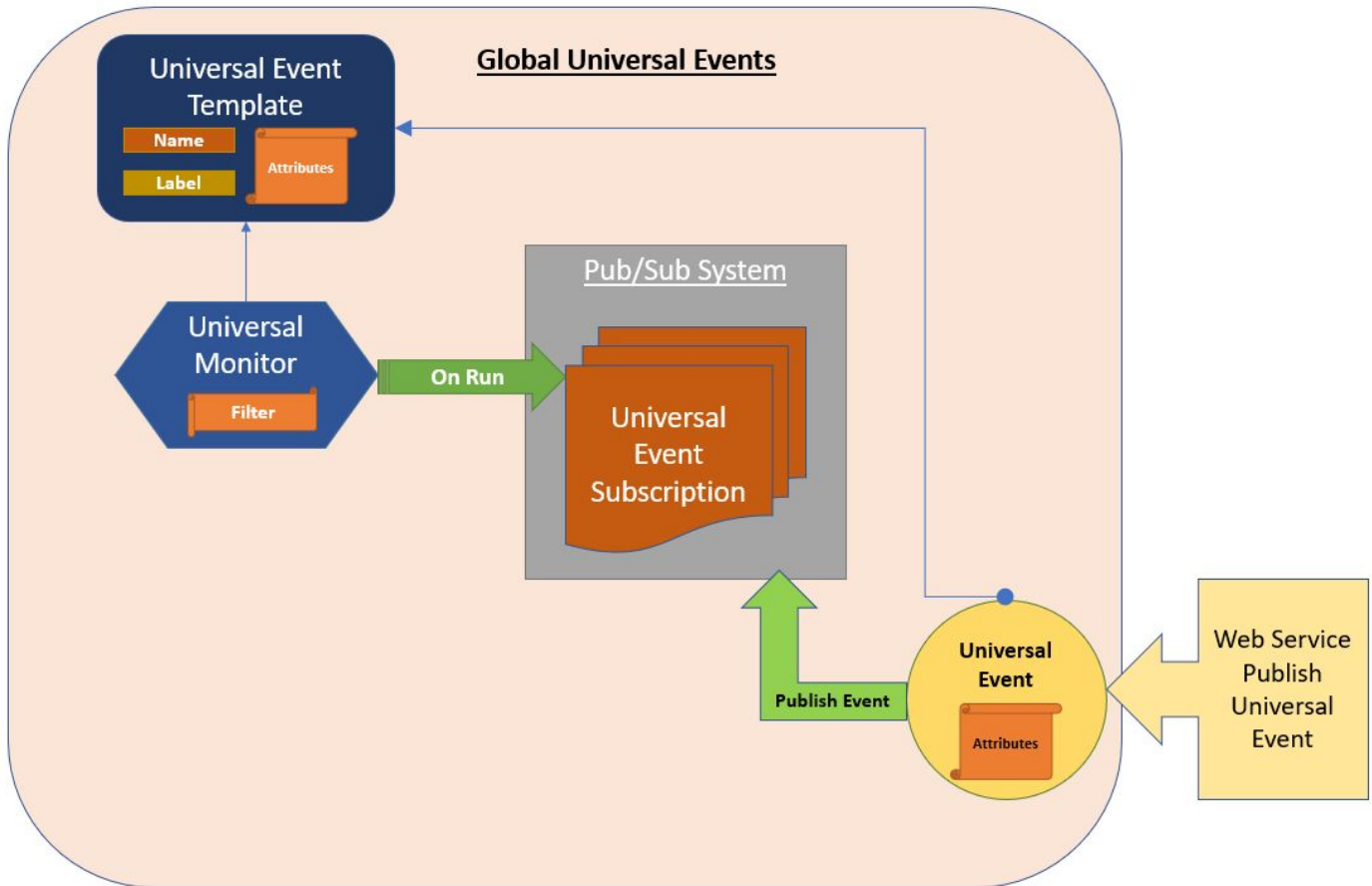
<b>Globally</b>	In a Universal Event Template.
<b>Locally</b>	As part of a Universal Extension-based Universal Template.

#### Note

When publishing Universal Events through the Web Service API or an extension-based Universal Task Publisher, take into consideration both Universal Controller server and Database server sizings.

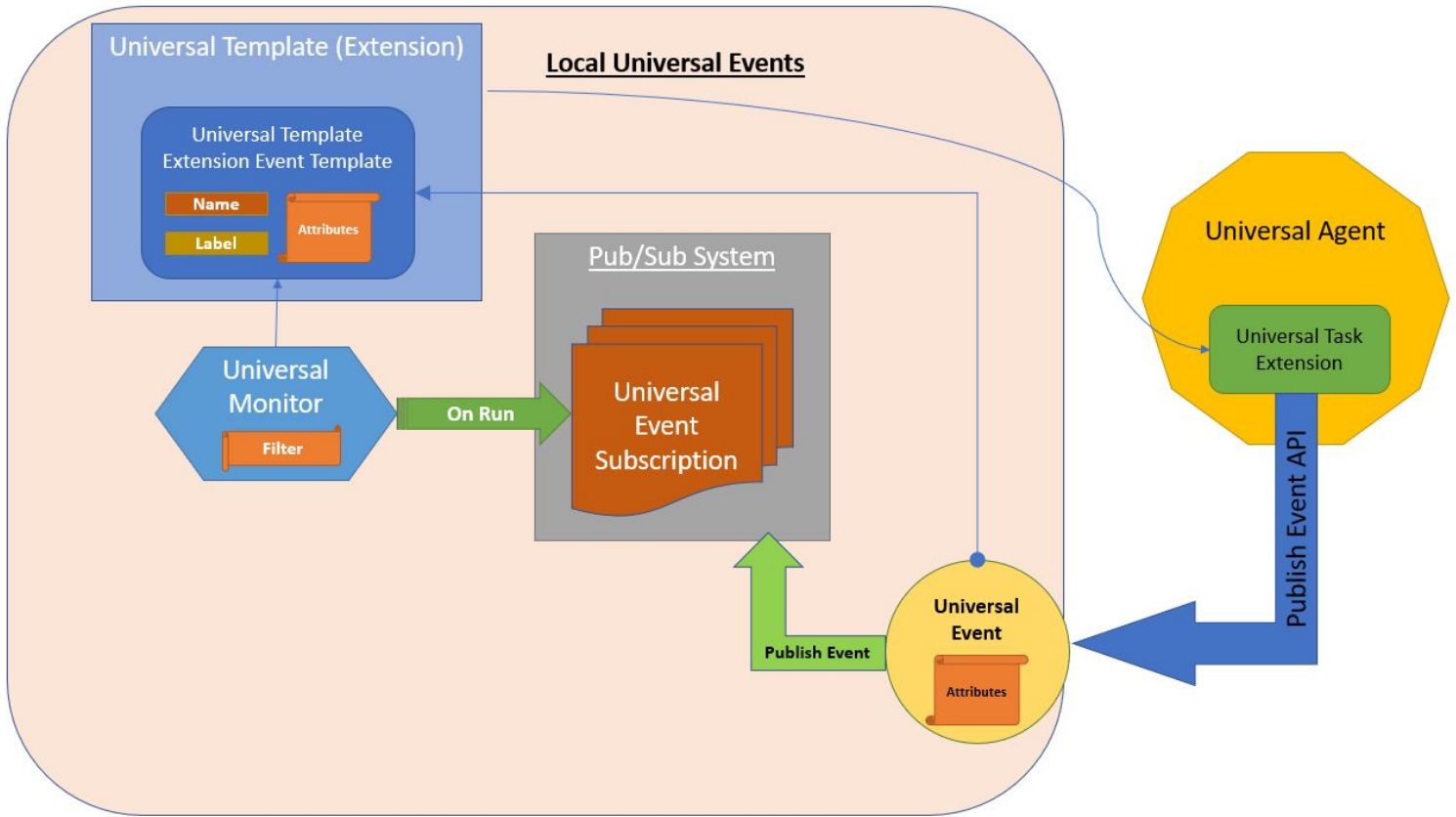
#### 20.1.1 Global Universal Events

For any global Universal Event, you must define a Universal Event Template for it to allow the event to be monitored by a Universal Monitor.



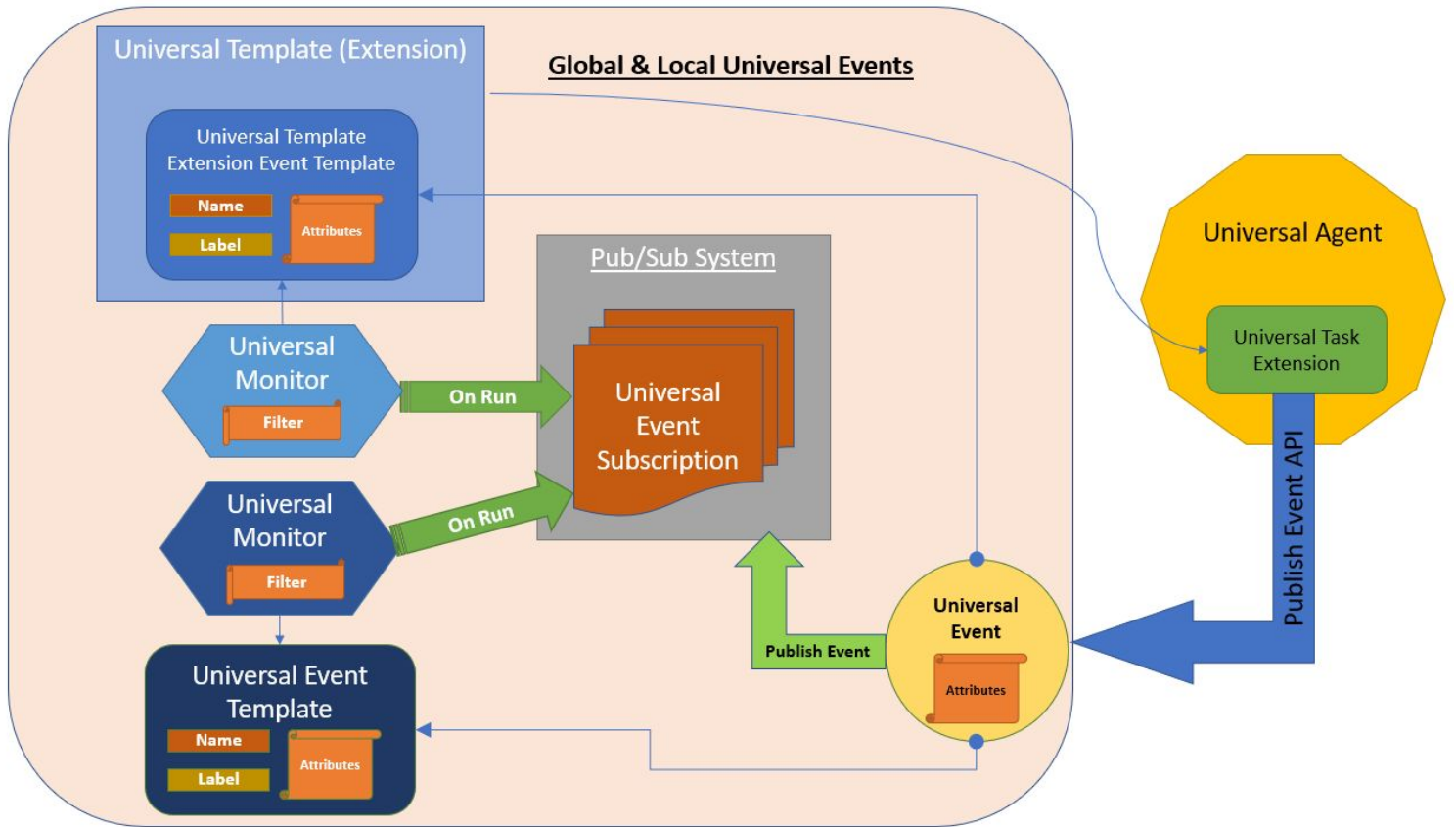
### 20.1.2 Local Universal Events

If a Universal Template type is Extension, and the Universal Extension can generate a local Universal Event, you must identify the Event by using the Event Templates tab on the Universal Template Details to allow the event to be monitored by an Universal Monitor.



### 20.1.3 Global and Local Universal Events

Additionally, Extension-based Universal Templates can publish global Universal Events.

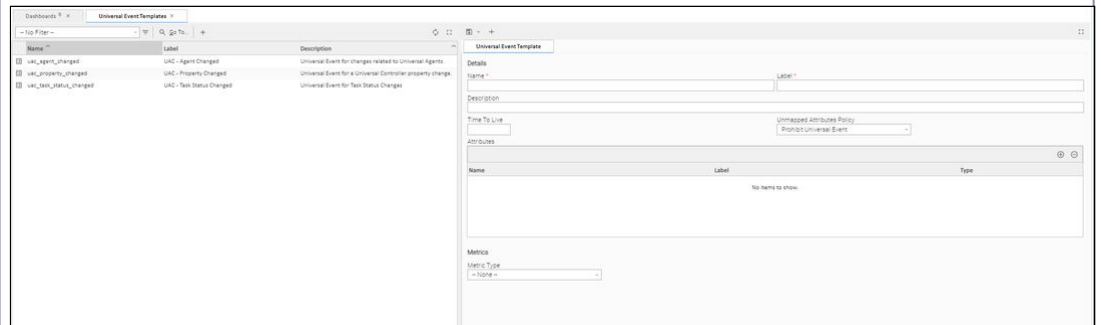




## 20.2 Creating a Universal Event Template

### Step 1

From the [Automation Center](#) navigation pane, select **Configuration > Universal Event Templates**. The Universal Event Templates list displays a list of all existing Universal Event Templates.

Below the list, Universal Event Template Details for a new Universal Event Template displays.



<b>Step 2</b>	<p>Enter / select Details for a new Universal Event Template, using the <a href="#">field descriptions</a> below as a guide.</p> <ul style="list-style-type: none"> <li>• Required fields display an asterisk ( * ) after the field name.</li> <li>• Default values for fields, if available, display automatically.</li> </ul> <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> <li>• Use the scroll bar.</li> <li>• Temporarily <a href="#">hide the list</a> above the Details.</li> <li>• Click the  button above the list to display a pop-up version of the Details.</li> </ul>
<b>Step 3</b>	<p>Click a  button. The task is added to the database, and all buttons and tabs in the Universal Task Details are enabled.</p>

### Note

To [open](#) an existing record on the list, either:

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

## 20.2.1 Universal Event Template Details

The following Universal Event Template Details is for a new Universal Event Template.

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 Universal Event Template Details.

Universal Event Template

**Details**

Name \*  Label \*

Description

Time To Live  Unmapped Attributes Policy: Prohibit Universal Event

Attributes

Name	Label	Type
No items to show.		

**Metrics**

Metric Type -- None --

### 20.2.2 Universal Event Template Details Field Descriptions

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

Field Name	Description
<b>Details</b>	This section contains assorted detailed information about a Universal Event Template.
Name	Name of this Universal Event.
Label	User-friendly display name for this event, to be displayed within the client. The Label must be unique for Global Events and unique within Local Events.
Description	Description of this event.
Time To Live	<p>Default value for the length of time, in minutes, that the Universal Event data is valid. This value can be unspecified (null).</p> <p>The Time To Live value can be overridden in the published event.</p> <p>If the Time To Live does not exist in the published event, then this value, if defined, will be used.</p> <p>If neither value exists, the Time To Live is 0, which means the event is deleted as soon as it is published.</p>

Field Name	Description
Unmapped Attributes Policy	Defines how unmapped/unknown attributes that are in the published event are handled. <ul style="list-style-type: none"> <li>• Prohibit Universal Event If the published event has any attributes that have not been defined in the template, the publish is rejected and not allowed.</li> <li>• Include Attributes Any extra attributes will be allowed and passed through as variables.</li> <li>• Exclude Attributes Any extra attributes are excluded and ignored. They will not be passed along as variables.</li> </ul>
Attributes	Name, Label, and Type of each attribute. <ul style="list-style-type: none"> <li>• Name Unique name for this attribute.</li> <li>• Label User-friendly display name for this attribute, to be displayed within the client.</li> <li>• Type Type of attribute:                             <ul style="list-style-type: none"> <li>• Text</li> <li>• Integer</li> <li>• Float</li> <li>• Boolean</li> </ul> </li> </ul>
System Event	Indication if this type of event is a System Event.
<b>Metrics</b>	This section contains information about configuring metrics for a Universal Event Template. <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p>To enable OpenTelemetry metrics, you must <a href="#">configure</a> an Open Telemetry metrics exporter in <a href="#">uc.properties</a> , otherwise, a noop meter provider is used.</p> </div>
Metric Type	Specifies the type of metric to instrument. Options are: <ul style="list-style-type: none"> <li>• None</li> <li>• Counter</li> <li>• UpDownCounter</li> <li>• Histogram</li> </ul>
Metric Name	Specifies the metric name. <p>The metric name can be a maximum of 63 characters and should be universally unique, for example:</p> <pre>&lt;event_name&gt;[.&lt;value_attribute&gt;]</pre> <pre>&lt;extension&gt;.&lt;event_name&gt;[.&lt;value_attribute&gt;]</pre> <p>The universal event <a href="#">Description</a> will be used as the metric description.</p> <p>The following namespaces (prefixes) are reserved and cannot be used for user-defined metric names.</p> <ul style="list-style-type: none"> <li>• <code>uc.</code> and <code>uc_</code></li> <li>• <code>ua.</code> and <code>ua_</code></li> <li>• <code>uac.</code> and <code>uac_</code></li> </ul>

Field Name	Description
Metric Value Attribute	<p>Specifies the name of an <b>Integer</b> or <b>Float</b> universal event attribute to use for the metric value when incrementing the counter or recording a histogram value.</p> <p>If left unspecified, a counter will be incremented by 1, and a histogram will record a value of 1, for each published universal event.</p>
Metric Unit	<p>Specifies an optional unit of measure.</p> <p>Maximum length of 63 ASCII characters. Units should follow the <a href="#">Unified Code for Units of Measure</a>.</p>
Metric Label Attributes	<p>Specifies a comma-delimited list of universal event attribute names to use for metric labels.</p> <p>For example, <code>attribute1,attribute2,attribute3</code></p> <p>At most 8 label attributes can be specified.</p> <div style="border: 1px solid red; padding: 10px; margin-top: 10px;"> <p>Do not specify attributes with high cardinality (many different attribute values) or attributes that may contain sensitive information.</p> </div>
Optional Metric Labels	<p>Specifies which system-supplied metric labels to include.</p> <ul style="list-style-type: none"> <li>• Agent Id                             <ul style="list-style-type: none"> <li>• Label: <code>agent.id</code></li> </ul> </li> <li>• Business Services                             <ul style="list-style-type: none"> <li>• Label: <code>security.business_services</code></li> </ul> </li> <li>• Task Name                             <ul style="list-style-type: none"> <li>• Label: <code>task.name</code></li> </ul> </li> </ul> <div style="border: 1px solid yellow; padding: 10px; margin-top: 10px;"> <p>The <b>Task Name</b> value will be represented by the unresolved task name at launch time to avoid the high cardinality of resolved task instance names.</p> <p>If multiple business services are assigned to the universal event, the <b>Business Services</b> value will be represented as a comma-delimited list of business services in alphabetical order. Be mindful that the <b>Business Services</b> metric label could have high cardinality depending on how you assign business service membership.</p> </div>

### 20.2.2.1 User-Defined Metric Name and Labels

If the [OTEL metrics](#) exporter is [configured](#), for each Universal Event Template or Universal Template Event Template with a metrics designation, the following metric will be exported.

<b>Name</b>	<code>&lt;metric-name&gt;_&lt;metric-unit&gt;_total</code>  <div style="border: 1px solid black; padding: 10px;"> <p>The metric name and labels may differ depending on the metric type and/or any normalization you are using, for example, <a href="#">Prometheus Normalization</a>.</p> </div>
<b>Type</b>	Counter, UpDownCounter, or Histogram
<b>Description</b>	The metric description is inherited from the Universal Event Template or Universal Template Event Template.
<b>Default Labels</b>	<ul style="list-style-type: none"> <li>• <code>exported_instance</code></li> <li>• <code>exported_job</code></li> <li>• <code>universal_event_name</code></li> <li>• <code>universal_template_name</code></li> <li>• <code>universal_extension_name</code></li> </ul>
<b>Optional Labels</b>	<ul style="list-style-type: none"> <li>• <code>label_attr_1, ..., label_attr_n</code></li> <li>• <code>agent_id</code></li> <li>• <code>task_name</code></li> <li>• <code>security_business_services</code></li> </ul>
<b>Example</b>	<p>The <code>universal_template_name</code> and <code>universal_extension_name</code> label values are non-empty for published local Universal Events (defined by a Universal Template Event Template) and empty for published global Universal Events (defined by a Universal Event Template).</p> <div style="border: 1px solid black; padding: 10px;"> <pre> &lt;metric-name&gt;_&lt;metric-unit&gt;_total {   exported_instance="&lt;service-instance-id&gt;",   exported_job="&lt;service-namespace&gt;/&lt;service-name&gt;",   universal_event_name="&lt;unv-event-name&gt;",   universal_template_name="&lt;unv-template-name&gt;",   universal_extension_name="&lt;unv-extension-name&gt;",   [label_attr_1="&lt;attr-1-value&gt;",]   ...,   [label_attr_n="&lt;attr-n-value&gt;",]   [agent_id="&lt;agent-id&gt;",]   [task_name="&lt;task-name&gt;",]   [security_business_services="&lt;security-business-services&gt;"]}                     </pre> </div>

## 20.3 Pre-Defined Global Universal Event

Universal Controller is pre-populated with global Universal Event system templates:

- System Property Changed
- Agent Changed
- Task Status Changed

(System Templates are read-only and cannot be deleted. During a new installation or a maintenance update, System Templates are imported.)

### 20.3.1 System Property Changed Universal Event

Whenever a [Universal Controller system property](#) is updated (from an active or passive node), a UAC - Property Changed Universal Event will be published.

The event attributes are shown below.

Universal Event Template Details: UAC - Property Changed
- ☰ ×

Universal Event Template

**Details**

Name * uac_property_changed	Label * UAC - Property Changed
Description Universal Event for a Universal Controller property change.	
Time To Live	Unmapped Attributes Policy Include Attributes

**Attributes**

Name	Label	Type
name	Name	Text
property_name	Property Name	Text
before_value	Before Value	Text
before_value_int	Before Value / Integer	Integer
before_value_boolean	Before Value / Boolean	Boolean
after_value	After Value	Text
after_value_int	After Value / Integer	Integer
after_value_boolean	After Value / Boolean	Boolean
updated_by	Updated By	Text
updated	Updated	Text

**System Template**

**Metrics**  
Metric Type  
-- None --

### 20.3.2 Agent Changed Universal Event

A UAC - Agent Changed Universal Event will be published if one of the following conditions is met.

- Active - Agent becomes Active.

- Decommissioned - Agent gets marked as Decommissioned.
- Deleted - Agent is Deleted.
- Offline - Agent goes Offline.
- Suspended - Agent gets Suspended.
- Registered - New Agent is Registered into the system.
- Resumed - Agent is Resumed.
- Updated - Agent is updated, for example any update from the UI or Web Service to any of the Agent fields (Name, Description, Business Services, Log Level, Heartbeat info, Task Execution info, Credentials).

The event attributes are shown below.

Universal Event Template Details: UAC - Agent Changed
- ☰ ×

Universal Event Template

**Details**

Name \*  Label \*

Description

Time To Live  Unmapped Attributes Policy

**Attributes**

Name	Label	Type
event_type	Event Type	Text
name	Name	Text
agent_type	Agent Type	Text
status	Status	Text
agent_id	Agent Id	Text
host_name	Host Name	Text
ip_address	IP Address	Text
log_level	Log Level	Text
hb_intvl	Heartbeat Interval	Integer
hb_grace_period	Heartbeat Grace Period	Integer
version	Version	Text
build	Build	Text
suspended	Suspended	Boolean
transient	Transient	Boolean
decommissioned	Decommissioned	Boolean
updated_by	Updated By	Text
updated	Updated	Text

System Template

**Metrics**

Metric Type

### **20.3.3 Task Status Changed Universal Event**

A UAC - Task Status Changed Universal Event will be published if the task instance status changes.

The event attributes are shown below.

Universal Event Template Details: UAC - Task Status Changed



Universal Event Template

Details

Name \*  Label \*

Description

Time To Live  Unmapped Attributes Policy

Attributes

Name	Label	Type
instance_id	Instance Id	Text
instance_number	Instance Number	Integer
instance_name	Instance Name	Text
security_name	Security Name	Text
description	Description	Text
type	Type	Text
type_value	Type Value	Integer
status	Status	Text
status_value	Status Value	Integer
status_description	Status Description	Text
execution_user	Execution User	Text
launch_source	Launch Source	Text
invoked_by	Invoked By	Text
source_version	Source Version	Integer
task_id	Task Id	Text
template_id	Template Id	Text
trigger_id	Trigger Id	Text
calendar_id	Calendar Id	Text
workflow_definition_id	Workflow Definition Id	Text
workflow_id	Workflow Id	Text
top_level_workflow_id	Top Level Workflow Id	Text
state_changed_time	State Changed Time	Text
trigger_time	Trigger Time	Text
launch_time	Launch Time	Text
created	Created	Text
start_time	Start Time	Text
end_time	End Time	Text
workflow_start_time	Workflow Start Time	Text
exit_code	Exit Code	Text
duration	Duration	Text
duration_in_seconds	Duration In Seconds	Integer
attempt	Attempt	Integer
maximum_retries	Maximum Retries	Integer
retry_indefinitely	Retry Indefinitely	Boolean
current_retry_count	Current Retry Count	Integer
next_retry_time	Next Retry Time	Text
early_finished	Early Finished	Boolean
late_finished	Late Finished	Boolean

## 21 Users and Groups

### 21.1 Overview

You can create any number of users and user groups for Universal Controller, and you can assign any user to any user group.

The [roles and permissions](#) that you assign each user and group determines the level of access to Universal Controller functions.

You can assign any role and permission to any user or any user group. If you assign a user to a group, the user inherits all roles and permissions assigned to that group.

See [LDAP Settings](#) for information on how to set up Universal Controller to use LDAP authentication for:

- [Credentials for running tasks](#)
- [User logins](#)

### 21.2 Default Users and Groups

#### 21.2.1 Default User

The default Universal Controller user is **ops.admin**. It is assigned to one of the default Universal Controller groups, Administrator Group.

#### 21.2.2 Default Groups

There are two default groups:

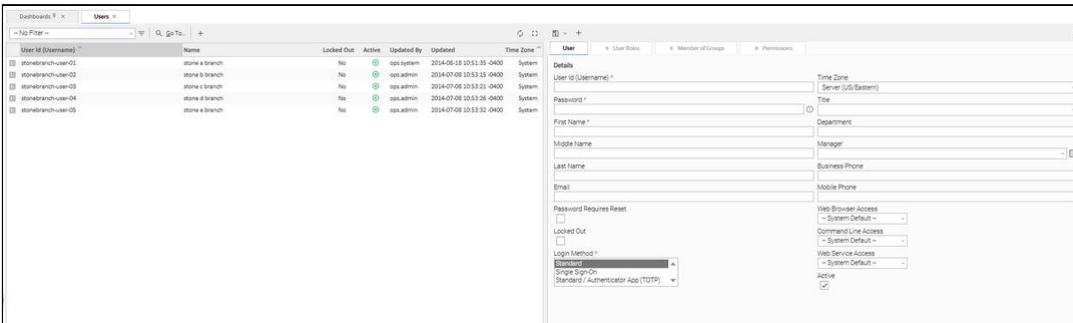
- **Administrator Group** has access to all Controller functions; by default, it is assigned the [ops.admin](#) role, which has permissions on all Controller functions.
- **Everything Group** has access to all functions that do not require the [ops.admin](#) role.

### 21.3 Adding a User

#### Note

You must have administrative permissions to add users.

By default, a new user has no permissions. Until permissions are granted, a user can log into the Universal Controller user interface and view options in the [Services](#), but cannot perform any tasks.

<p><b>Step 1</b></p>	<p>From the <a href="#">Administration</a> navigation pane, select <b>Security &gt; Users</b>. The Users list displays a list of all currently defined users.</p> <p>To the right of the list, User Details for a new user displays.</p> 
<p><b>Step 2</b></p>	<p>Enter/select Details for a new user, using the <a href="#">field descriptions</a> below as a guide.</p> <ul style="list-style-type: none"> <li>• Required fields display an asterisk ( * ) after the field name.</li> <li>• Default values for fields, if available, display automatically.</li> </ul> <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> <li>• Use the scroll bar.</li> <li>• Temporarily <a href="#">hide the list</a> above the Details.</li> <li>• Click the <b>New</b> button above the list to display a pop-up version of the Details.</li> </ul>
<p><b>Step 3</b></p>	<p>Optionally, assign one or more roles to the user, assign the user to a group, or assign permissions to this user.</p>
<p><b>Step 4</b></p>	<p>Click a <b>Save</b> button. The user is added to the database, and all buttons and tabs in the User Details are enabled.</p>

**Note**

To [open](#) an existing record on the list, either:

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

**21.3.1 User Details**

The following details identifies the roles and permissions required to read and update user details.

Roles	Permissions	Fields
<ul style="list-style-type: none"> <li>• ops_admin</li> <li>• ops_user_admin</li> </ul>	<ul style="list-style-type: none"> <li>• Read any user.</li> <li>• Edit any user.</li> </ul>	<ul style="list-style-type: none"> <li>• All</li> </ul>
<ul style="list-style-type: none"> <li>• ops_service</li> </ul>	<ul style="list-style-type: none"> <li>• Read any user.</li> </ul>	

Roles	Permissions	Fields
<ul style="list-style-type: none"> <li>• none</li> </ul>	<ul style="list-style-type: none"> <li>• Read its own user record (details).</li> <li>• Read its own Role, Permissions, and Member of Groups (group membership), but cannot read any Group record.</li> <li>• Update specific fields in its own details (see <b>Fields</b>).</li> </ul>	<ul style="list-style-type: none"> <li>• First Name</li> <li>• Middle Name</li> <li>• Last Name</li> <li>• Email</li> <li>• Time Zone</li> <li>• Title</li> <li>• Department</li> <li>• Business Phone</li> <li>• Mobile Phone</li> </ul>

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

Dashboards x
Users x
User Details: stone a branch x

User
User Roles
Member of Groups
Permissions

**Details**

User Id (Username) \*  
stonebranch-user-01

Password \*  
.....

First Name \*  
stone a

Middle Name

Last Name  
branch

Email

Password Requires Reset

Locked Out

Login Method \*  
Standard  
Single Sign-On  
Standard / Authenticator App (TOTP)

Time Zone  
System

Title  
IT Technician

Department

Manager

Business Phone

Mobile Phone

Web Browser Access  
-- System Default --

Command Line Access  
-- System Default --

Web Service Access  
-- System Default --

Active

**Personal Access Tokens**

Enter new application/token name Expiration

Name	Expiration	Last Used	Created

**User Impersonation**

Allowed Impersonation Users  
Enter User Id (Username) v

## 21.3.2 User Details Field Descriptions

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

Field Name	Description
<b>Details</b>	This section contains detailed information about the user.
User ID	Log in ID for this user.
Password	<p>Password of this user.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b></p> <p>The hint for this field, as well as the information icon, will display any current characteristics and restrictions for Passwords as defined in <a href="#">Password Settings</a>.</p> </div>
First Name	First name of this user.
Middle Name	Middle name of this user.
Last Name	Last name of this user.
Name	Automatically generated from the <a href="#">First Name</a> and <a href="#">Last Name</a> of this user.
Email	Email address of this user.
Password Requires Reset	If enabled, the user will be prompted to reset the password at next login.
Locked Out	If enabled, locks out the user. This field is enabled automatically if the maximum number of successive failed login attempts has been reached by the user.
Login Method	<p>Login method(s) that the user can authenticate with. You can use the Ctrl key to select multiple methods. Only one of <b>Standard</b> or <b>Standard / Authenticator App (TOTP)</b> can be selected, not both.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• Standard</li> <li>• Single Sign-On</li> <li>• Standard / Authenticator App (TOTP)</li> </ul>
Time Zone	Time zone of this user. When this user logs in, all scheduling times will be shown in the user's time zone, unless the trigger specifies a different time zone.
Title	Business title of this user.
Department	Business department of this user.
Manager	Business manager of this user.
Business Phone	Business phone number of this user.
Mobile Phone	Mobile phone number of this user.

Web Browser Access	<p>Specifies whether or not the user can log in to the user interface.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>System Default - User restriction for logging in to the user interface is based on the current system default value of the <a href="#">System Default Web Browser Access</a> Universal Controller system property.</li> <li>Yes - User is not restricted from logging in to the user interface.</li> <li>No - User is restricted from logging in to the user interface.</li> </ul>
Command Line Access	<p>Specifies whether or not the user can log in to the Universal Controller <a href="#">Command Line Interface (CLI)</a>.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>System Default - User restriction for logging in to the CLI is based on the current system default value of the <a href="#">System Default Command Line Access</a> Universal Controller system property.</li> <li>Yes - User is not restricted from logging in to the CLI.</li> <li>No - User is restricted from logging in to the CLI.</li> </ul>
Web Service Access	<p>Specifies whether or not the user can log in to the Universal Controller <a href="#">RESTful Web Services API</a>.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>System Default - User restriction for logging in to the Universal Controller Web Services is based on the current system default value of the <a href="#">System Default Web Service Access</a> Universal Controller system property.</li> <li>Yes - User is not restricted from logging in to the Universal Controller Web Services.</li> <li>No - User is restricted from logging in to the Universal Controller Web Services.</li> </ul>
Active	<p>If enabled, the user ID is active and the user can log in. If disabled, the user is deactivated; the user will not appear in user lists and cannot be used for access to the Controller.</p>
<b>Personal Access Tokens</b>	<p>This section contains assorted <a href="#">detailed information</a> about the applications that will access the Universal Controller Web Service APIs using the personal access token.</p>
Expiration	<p>Specifies when the personal access token expires. If left unspecified, the token never expires.</p>
<b>User Impersonation</b>	<p>This section specifies the users that can be impersonated by this user on Universal Controller Web Service requests.</p>
Allowed Impersonation Users	<p>Specifies the users that can be impersonated by this user using the X-Impersonate-User HTTP header on Web Service requests.</p> <p>User impersonation requires the ops_user_impersonate role.</p> <p>Users with the ops_admin role can impersonate any user and do not need to specify Allowed Impersonation Users.</p>
<b>Metadata</b>	<p>This section contains <a href="#">Metadata</a> information about this record.</p>
UUID	<p>Universally Unique Identifier of this record.</p>
Updated By	<p>Name of the user that last updated this record.</p>
Updated	<p>Date and time that this record was last updated.</p>
Created By	<p>Name of the user that created this record.</p>
Created	<p>Date and time that this record was created.</p>
<b>Buttons</b>	<p>This section identifies the buttons displayed above and below the User Details that let you perform various actions.</p>
<b>Save</b>	<p>Saves a new user record in the Controller database.</p>

<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new record.
<b>Update</b>	Saves updates to the record.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this user.
<b>Tabs</b>	This section identifies the tabs across the top of the User Details that provide access to additional information about the user.
<b>User Roles</b>	Allows you to assign <a href="#">roles</a> to this user.
<b>Member of Groups</b>	Allows you to assign this user to one or more <a href="#">groups</a> .  <div style="border: 1px solid orange; padding: 5px; margin: 5px 0;"> <p><b>Note</b> Universal Controller only supports a user being a member of 1,000 groups or less.</p> </div>
<b>Permissions</b>	Allows you to assign <a href="#">permissions</a> to this user.

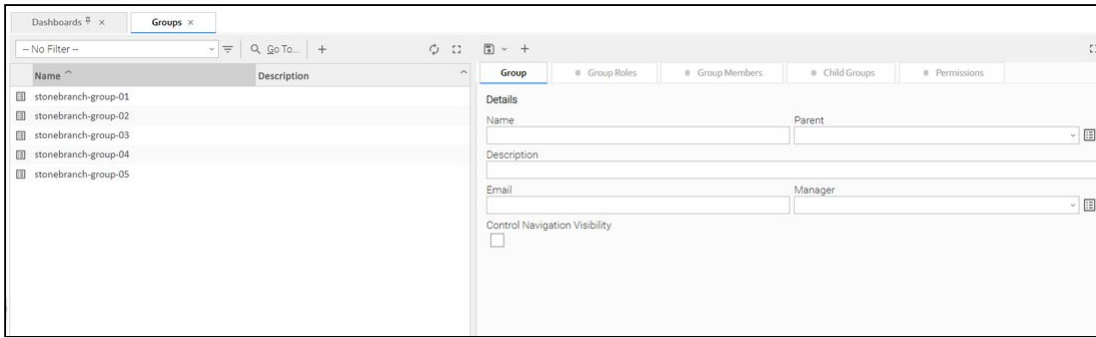
## 21.4 Adding a Group

### Note

You must have administrative privileges to add groups.

A group is a collection of users. You can assign privileges and roles to groups or users. You can also assign groups to other groups.

Any user assigned to a group inherits all roles and permissions assigned to that group.

<p><b>Step 1</b></p>	<p>From the <a href="#">Administration</a> navigation pane, select <b>Security &gt; Groups</b>. The Groups list displays a list of all currently defined groups.</p> <p>To the right of the list, Group Details for a new group displays.</p> 
<p><b>Step 2</b></p>	<p>Enter/select Details for a new group, using the <a href="#">field descriptions</a> below as a guide.</p> <ul style="list-style-type: none"> <li>• Required fields display an asterisk ( * ) after the field name.</li> <li>• Default values for fields, if available, display automatically.</li> </ul> <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> <li>• Use the scroll bar.</li> <li>• Temporarily <a href="#">hide the list</a> above the Details.</li> <li>• Click the <b>New</b> button above the list to display a pop-up version of the Details.</li> </ul>
<p><b>Step 3</b></p>	<p>Optionally, assign one or more roles to the group, assign members (users) to the group, assign other groups to this group, or assign permissions to this group.</p>
<p><b>Step 4</b></p>	<p>Click a <b>Save</b> button. The group is added to the database, and all buttons and tabs in the Group Details are enabled.</p>

**Note**

To [open](#) an existing record on the list, either:

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

### 21.4.1 Group Details

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

### 21.4.2 Group Details Field Descriptions

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

Field Name	Description
<b>Details</b>	This section contains detailed information about the group.
Name	Name of this group.
Parent	Name of this group's parent group, if any.
Description	Description of this record. (Maximum = 255 characters.)
Email	Email address for this group.
Manager	Universal Controller user that is the manager of this group.
Control Navigation Visibility	Indication of whether or not to control the visibility of navigation pane entries in the Controller <a href="#">Services</a> , via the Navigation Visibility field, for members of this Group. If Control Navigation Visibility is not checked (the default selection), all entries are visible.

Navigation Visibility	<p>If Control Navigation Visibility is enabled; Drop-down list of all Navigator entries.</p> <p>You can manually select and deselect any entry on the list. You also can click <b>Check All</b> above the list to make all Navigator entries visible to users in this Group, or click <b>Uncheck All</b> above the list to hide all Navigator entries from users in this Group.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>If a new Navigation Visibility entry becomes available (for example, when a new Universal Task type has been created) <i>after</i> an administrator has configured the Navigation Visibility feature for a Group, you must explicitly add that new entry to the configuration.</p> <p>If a newly created Universal Task type does not appear as an entry in the Navigation Visibility drop-down list, confirm that the Universal Template has at least one field defined, perform the <a href="#">Refresh Navigation Tree</a> operation, and <a href="#">refresh</a> the Group Details (or <a href="#">refresh</a> the Groups list).</p> <p>When a Universal Template is deleted, any Navigation Visibility configuration with a reference to its corresponding Universal Task type entry will automatically have that entry removed.</p> </div>
<b>Metadata</b>	This section contains <a href="#">Metadata</a> information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Group Details that let you perform various actions.
<b>Save</b>	Saves a new group record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Save &amp; View</b>	Saves a new record in the Controller database and continues to display that record.
<b>New</b>	Displays empty (except for default values) Details for creating a new record.
<b>Update</b>	Saves updates to the record.
<b>Copy</b>	Creates a <a href="#">copy</a> of this Group, which you are prompted to rename.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this group.
<b>Tabs</b>	This section identifies the tabs across the top of the Group Details that provide access to additional information about the user.
<b>Group Roles</b>	Allows you to assign <a href="#">roles</a> to this group.

<p><b>Group Members</b></p>	<p>Allows you to assign <a href="#">users</a> to this group.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p><b>Note</b> Universal Controller only supports a user being a member of 1,000 groups or less.</p> </div>
<p><b>Child Groups</b></p>	<p>Allows you to assign other groups to this group.</p>
<p><b>Permissions</b></p>	<p>Allows you to assign <a href="#">permissions</a> to this group.</p>

## 21.5 Additional Details

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

## 21.6 Assigning Users to Groups

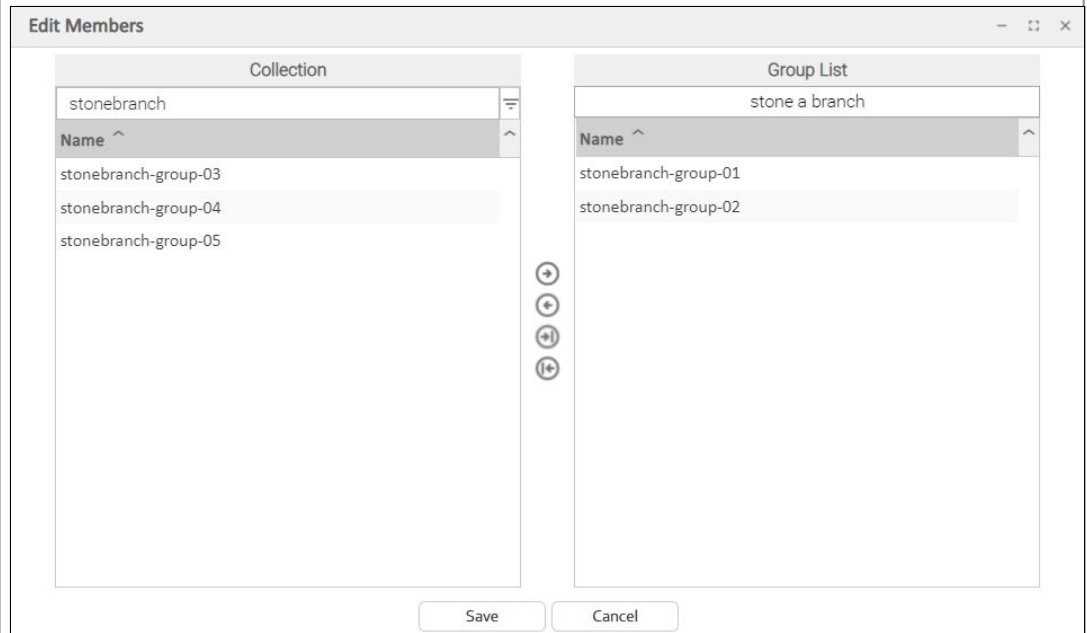
You can assign users to groups from a User record and from a Group record.

<p><b>Step 1</b></p>	<p>Open the User or Group record.</p>																									
<p><b>Step 2</b></p>	<p>Click the <b>Group Members</b> tab.</p> <p>For a User, a list of all groups to which the user is assigned displays:</p> <div data-bbox="469 1234 1549 1592" style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p>User Details: stone a branch</p> <p>User   User Roles   <b>Member of Groups</b>   Permissions</p> <p>2 Group Members</p> <table border="1"> <thead> <tr> <th>Group</th> <th>Updated By</th> <th>Updated</th> </tr> </thead> <tbody> <tr> <td><a href="#">stonebranch-group-01</a></td> <td>ops.admin</td> <td>2014-07-08 10:43:39 -0400</td> </tr> <tr> <td><a href="#">stonebranch-group-02</a></td> <td>ops.admin</td> <td>2014-07-08 10:43:39 -0400</td> </tr> </tbody> </table> </div> <p>For a Group, a list of all users assigned to the group displays.</p> <div data-bbox="469 1675 1549 2018" style="border: 1px solid gray; padding: 5px;"> <p>Group Details: stonebranch-group-01</p> <p>Group   Group Roles   <b>Group Members</b>   Child Groups   Permissions</p> <p>3 Group Members</p> <table border="1"> <thead> <tr> <th>User</th> <th>User Id (Username)</th> <th>Updated By</th> <th>Updated</th> </tr> </thead> <tbody> <tr> <td><a href="#">stone b branch</a></td> <td>stonebranch-user-02</td> <td>Admin</td> <td>2022-11-02 19:22:18 -0400</td> </tr> <tr> <td><a href="#">stone c branch</a></td> <td>stonebranch-user-03</td> <td>Admin</td> <td>2022-11-02 19:22:18 -0400</td> </tr> <tr> <td><a href="#">stone a branch</a></td> <td>stonebranch-user-01</td> <td>ops.admin</td> <td>2014-07-08 10:43:39 -0400</td> </tr> </tbody> </table> </div>	Group	Updated By	Updated	<a href="#">stonebranch-group-01</a>	ops.admin	2014-07-08 10:43:39 -0400	<a href="#">stonebranch-group-02</a>	ops.admin	2014-07-08 10:43:39 -0400	User	User Id (Username)	Updated By	Updated	<a href="#">stone b branch</a>	stonebranch-user-02	Admin	2022-11-02 19:22:18 -0400	<a href="#">stone c branch</a>	stonebranch-user-03	Admin	2022-11-02 19:22:18 -0400	<a href="#">stone a branch</a>	stonebranch-user-01	ops.admin	2014-07-08 10:43:39 -0400
Group	Updated By	Updated																								
<a href="#">stonebranch-group-01</a>	ops.admin	2014-07-08 10:43:39 -0400																								
<a href="#">stonebranch-group-02</a>	ops.admin	2014-07-08 10:43:39 -0400																								
User	User Id (Username)	Updated By	Updated																							
<a href="#">stone b branch</a>	stonebranch-user-02	Admin	2022-11-02 19:22:18 -0400																							
<a href="#">stone c branch</a>	stonebranch-user-03	Admin	2022-11-02 19:22:18 -0400																							
<a href="#">stone a branch</a>	stonebranch-user-01	ops.admin	2014-07-08 10:43:39 -0400																							

**Step 3**

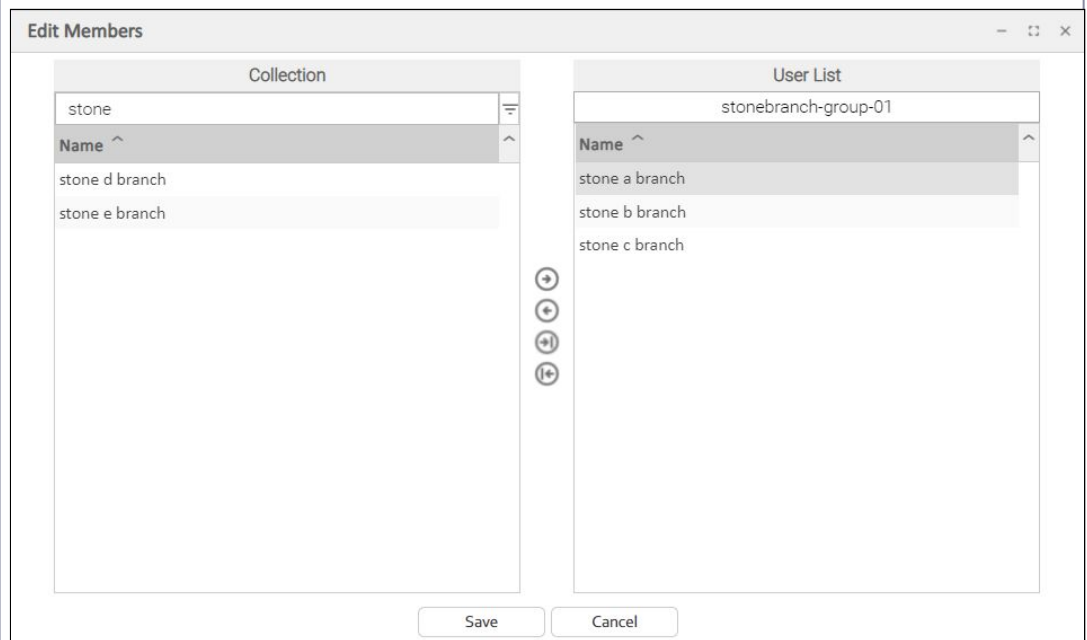
For a User, either:

- Click **New** to [create a Group](#) and automatically assign the User to it.
- Click **Edit** to display an **Edit Members** pop-up that allows you to assign the User to existing Groups.



For a Group, either:

- Click **New** to [create a User](#) and automatically assign it to the Group.
- Click **Edit** to display an **Edit Members** pop-up that allows you to assign existing Users to the Group.



**Step 4**

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

<b>Step 5</b>	To assign a User to a Group, move the User/Group from the <b>Collection</b> window to the <b>List</b> window: <ol style="list-style-type: none"> <li>1. To move a single entry, double-click it or click it once and then click the &gt; arrow.</li> <li>2. To move multiple entries, Ctrl-click them and then click the &gt; arrow.</li> <li>3. To move all entries, click the &gt;&gt; arrow.</li> </ol> To unassign the User to a Group, move the User/Group from the <b>List</b> window to the <b>Collection</b> window: <ol style="list-style-type: none"> <li>1. To move a single entry, double-click it or click it once and then click the &lt; arrow.</li> <li>2. To move multiple entries, Ctrl-click them and then click the &lt; arrow.</li> <li>3. To move all entries, click the &lt;&lt; arrow.</li> </ol>
<b>Step 6</b>	Click <b>Save</b> .

## 21.7 Navigation Visibility for Users and Groups

Users with the [ops.admin](#) role or the [ops\\_user\\_admin](#) role can control, via the [Control Navigation Visibility](#) and [Navigation Visibility](#) fields in the [Group Details](#) for a Group, which entries in the Controller [Services](#) are visible to users in that Group.

The following conditions apply to navigation visibility

<b>User in Multiple Groups</b>	If a user belongs to multiple Groups, and for any of those Groups the <a href="#">Control Navigation Visibility</a> is not enabled, Navigator visibility for that user is not controlled.
<b>User in Multiple Groups</b>	If a user belongs to multiple Groups, and for all of those Groups navigation visibility has been deselected for one or more entries, the visible entries from all Groups will be merged. That is, if an entry is not visible to users in Group A, but the entry is visible to users in Group B, the entry will be visible to any user belonging to both Groups.
<b>Navigation Pane</b>	If all entries in a folder of a navigation pane (for example, the Tasks folder in the Automation Center navigation pane) are not visible to a Group, that folder does not display for any user in that Group.
<b>Navigation Pane</b>	If all entries in a navigation pane are not visible to a Group, that navigation pane does not display for any user in that Group.
<b>Automation Center Navigation Pane</b>	If a Group does not have visibility to one or more entries in the configurable <a href="#">Automation Center</a> navigation pane, those entries are not available for configuration for any user in that Group.
<b>Trigger Types / Task Types</b>	If a Group does not have visibility to a specific Trigger type or Task type, that Trigger type or Task type does not display in the <b>New</b> drop-down menu on the All Triggers list or the All Tasks list for any user in that Group.
<b>Universal Task Types</b>	Dynamically created Universal Task type entries are available for selection / deselection in the <a href="#">Navigation Visibility</a> field.
<b>User Roles</b>	The <a href="#">role</a> selections for any user override any navigation visibility selections for any Group in which that user is a member.
<b>User Roles</b>	Navigation visibility selections for a Group do not apply to any users in the Group with the <a href="#">ops_admin</a> role.

## 21.8 Deleting a User

Attempts to delete a user will be prohibited under the following circumstances:

- User is currently assigned as the manager for user(s).

- User is currently assigned as the manager for group(s).
- User currently associated with enabled trigger(s).
- User currently assigned as the execution user for trigger(s).
- User currently assigned as the execution user for active task instance(s).
- User currently assigned as the visible to for bundle(s).

If deletion of a user is allowed, the following information associated with the user record also will be deleted:

- User roles.
- User permissions.
- Group memberships.
- User's filters.
- User's pinned filter preferences.
- User's layout preferences.
- User's navigation preferences.
- User's reports (reports made visible only to that user).
- User's user preferences.
- User's dashboards.

## 21.9 Impersonating a User

Users with the [ops\\_admin](#) role, the [ops\\_user\\_admin](#) role, or the [ops\\_user\\_impersonate](#) role are able to specify an **X-Impersonate-User** HTTP header, in addition to their authentication header/parameter, when invoking Universal Controller [Web Service APIs](#).

The **X-Impersonate-User** HTTP header is specified as the [User Id](#) of the user to be impersonated.

Users with the [ops\\_admin](#) role can impersonate any user.

Users with only the [ops\\_user\\_admin](#) role or the [ops\\_user\\_impersonate](#) role must explicitly declare which users can be impersonated in the [Allowed Impersonation Users](#) field.

## 21.10 Copying Groups

### 21.10.1 Overview

You can make copies of all Universal Controller records, including Groups, using the standard method for [Copying a Record](#): selecting **Insert** on the [Action menu](#).

However, this method does not make copies of any records that are associated with the copied record. For Groups, **Insert** does not make copies of any Group Roles, Group Members, and Permissions that are associated with the Group.

The Copy option allows you to make a complete copy of a Group, including all records associated with the Group.

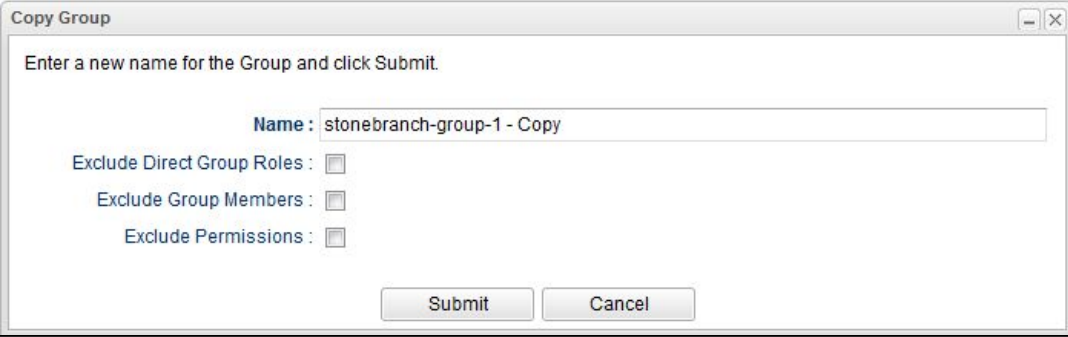
### 21.10.2 Copying One or More Groups from a Groups List

<b>Step 1</b>	From the <a href="#">Administration</a> navigation pane, select <b>Security &gt; Groups</b> to display the Groups list.
<b>Step 2</b>	Locate the Group(s) you want to copy (see <a href="#">Filtering</a> ).

<p><b>Step 3</b></p>	<p>Copy the Group(s):</p> <p><b>Copy One Group</b></p> <ol style="list-style-type: none"> <li>1. Right-click the Group Name.</li> <li>2. On the <a href="#">Action menu</a>, select <b>Copy</b>. A Copy Group pop-up dialog displays.</li> </ol> <div data-bbox="520 409 1549 730" style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">Copy Group</p> <p style="text-align: center;">Enter a new name for the Group and click Submit.</p> <p style="text-align: center;">Name : <input type="text" value="stonebranch-group-1 - Copy"/></p> <p>Exclude Direct Group Roles : <input type="checkbox"/></p> <p>Exclude Group Members : <input type="checkbox"/></p> <p>Exclude Permissions : <input type="checkbox"/></p> <p style="text-align: center;"> <input type="button" value="Submit"/> <input type="button" value="Cancel"/> </p> </div> <ol style="list-style-type: none"> <li>3. Enter a new name for the Group and, optionally, exclude any of the following records from the copy: <ul style="list-style-type: none"> <li>Group Roles</li> <li>Group Members</li> <li>Permissions</li> </ul> </li> <li>4. Click <b>Submit</b> to create a copy of the Group.</li> </ol> <p><b>Copy Multiple Groups</b></p> <ul style="list-style-type: none"> <li>▪ Ctrl-Click the Groups that you want to copy.</li> <li>▪ Right-click any of the selected Groups.</li> <li>▪ On the <a href="#">Action menu</a>, select <b>Copy</b>.</li> <li>▪ On the Confirmation pop-up that displays, click <b>OK</b>. The copied Groups are added to the list, with - <b>Copy</b> added as a suffix to the Group Name for each Group. If a Group with that - <b>Copy</b> name already exists, another copy is not created.</li> </ul> <div data-bbox="464 1178 1541 1335" style="border: 2px solid orange; padding: 10px; margin-top: 20px;"> <p><b>Note</b></p> <p>When copying multiple Groups; Group Roles, Group Members, and Permissions will not be excluded.</p> </div>
----------------------	---

### 21.10.3 Copying a Group from the Group Details

<p><b>Step 1</b></p>	<p>Select a Group from the Groups list. The <a href="#">Group Details</a> for that Group displays.</p>
----------------------	--

<p><b>Step 2</b></p>	<p>Either:</p> <ul style="list-style-type: none"> <li>• Click the <b>Copy</b> button.</li> <li>• Right-click the Details to display the <a href="#">Action menu</a>, and then click <b>Copy</b>.</li> </ul> <p>A Copy Group pop-up dialog displays.</p> 
<p><b>Step 3</b></p>	<p>Enter a new name for the Group and, optionally, exclude any of the following records from the copy:</p> <ul style="list-style-type: none"> <li>• Group Roles</li> <li>• Group Members</li> <li>• Permissions</li> </ul>
<p><b>Step 4</b></p>	<p>Click <b>Submit</b> to create a copy of the Group.</p>

### 21.10.4 Copy Permissions

To copy a Group, you must have either the [ops\\_admin](#) or [ops\\_user\\_admin](#) role.

## 22 Roles and Permissions

### 22.1 Overview

Roles control user and group access to administrative functions within Universal Controller. A user or group that has been assigned a role has permission to perform any function defined for that role.

Permissions control user and group access to specific functions for specific types of Controller records.

Some roles have permissions for specific functions that can be assigned individually. For example, a user that has been assigned the [ops\\_agent\\_cluster\\_admin](#) role has permission to perform all functions associated with Agent Clusters. A user that has not been assigned the [ops\\_agent\\_cluster\\_admin](#) role still can be given permission to perform individual functions associated with Agent Clusters via the [Agent Cluster Permissions](#).

Conversely, since there is no role associated with Agents, permissions for a user to perform functions associated with Agents must be assigned specific [Agent Permissions](#).

#### Note

The [ops\\_admin](#) role assigns a user permission to perform all functions.

### 22.2 Assigning Roles to Users or Groups

Roles control user access to functions that include:

- Setting up security.
- Creating reports, filters, and gauges.
- Creating Agent Clusters, SNMP Managers.
- Creating Email Connections, Database Connections, PeopleSoft Connections, and SAP Connections.
- Creating and promoting bundles of records.

Each role is a predefined collection of administrative functions (see [Description of Roles](#), below). By assigning a role to a user or group, you automatically give that user or group all functions associated with that role.

#### Note

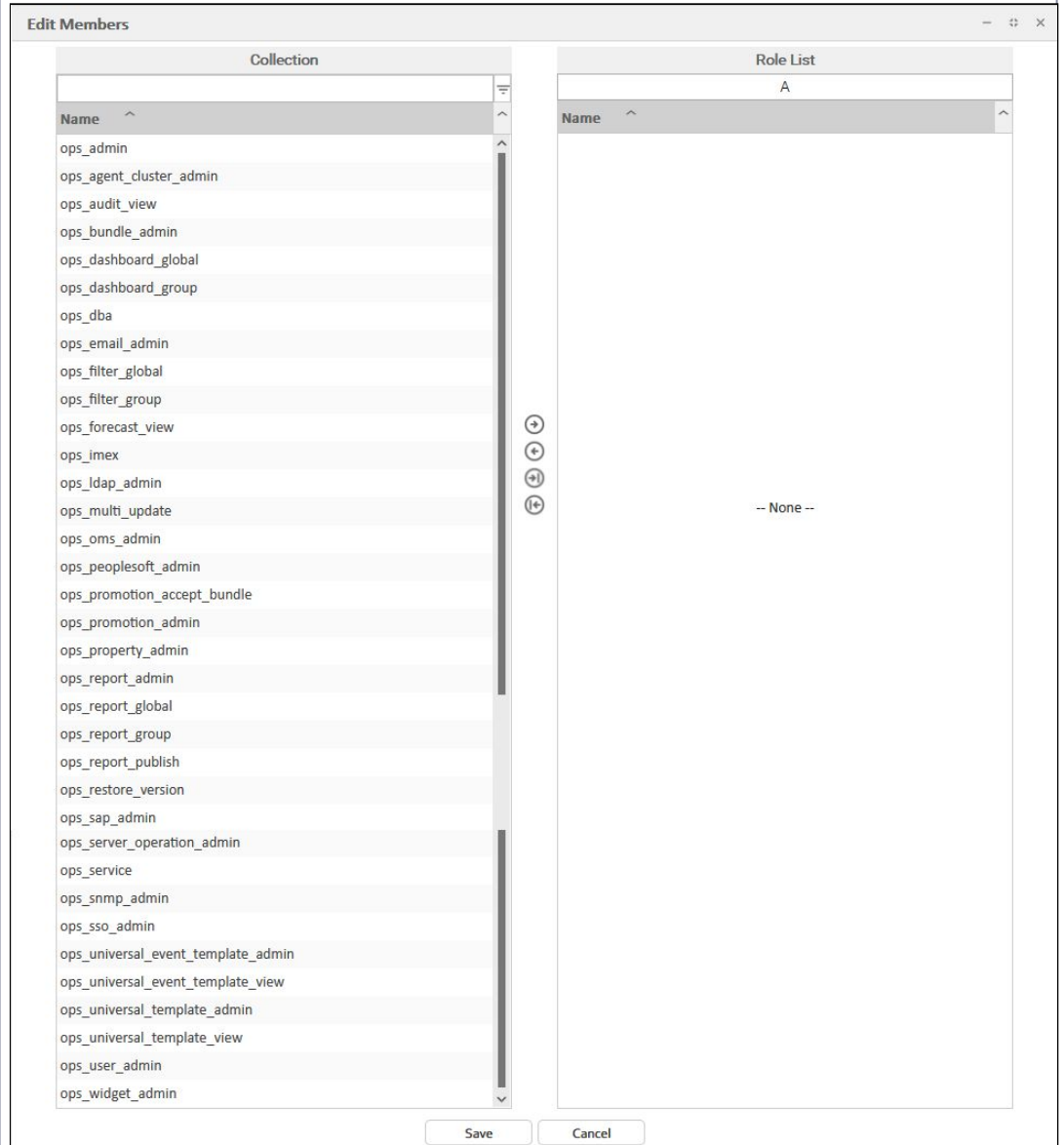
You cannot add new roles to the Controller; you must assign administrative functions to groups or users using the predefined roles.

To assign roles to a user or group:

<p><b>Step 1</b></p>	<p>Open a <a href="#">User</a> or <a href="#">Group</a> record.</p>																									
<p><b>Step 2</b></p>	<p>For a User, click the <b>User Roles</b> tab. A list of Roles assigned to the User displays.</p> <div data-bbox="469 344 1544 716" style="border: 1px solid black; padding: 5px;"> <table border="1"> <thead> <tr> <th>Role</th> <th>Granted By</th> <th>Inherited</th> <th>Updated By</th> <th>Updated</th> </tr> </thead> <tbody> <tr> <td><a href="#">ops_report_global</a></td> <td></td> <td>No</td> <td>ops.admin</td> <td>2019-03-11 14:09:54 -0400</td> </tr> <tr> <td><a href="#">ops_report_group</a></td> <td></td> <td>No</td> <td>ops.admin</td> <td>2019-03-11 14:09:54 -0400</td> </tr> </tbody> </table> </div> <p>For a Group, click the <b>Group Roles</b> tab. A list of Roles assigned to the Group displays.</p> <div data-bbox="469 846 1544 1272" style="border: 1px solid black; padding: 5px;"> <table border="1"> <thead> <tr> <th>Role</th> <th>Granted By</th> <th>Inherits</th> <th>Updated By</th> <th>Updated</th> </tr> </thead> <tbody> <tr> <td><a href="#">ops_admin</a></td> <td></td> <td>Yes</td> <td>ops.admin</td> <td>2014-07-08 11:27:25</td> </tr> </tbody> </table> </div>	Role	Granted By	Inherited	Updated By	Updated	<a href="#">ops_report_global</a>		No	ops.admin	2019-03-11 14:09:54 -0400	<a href="#">ops_report_group</a>		No	ops.admin	2019-03-11 14:09:54 -0400	Role	Granted By	Inherits	Updated By	Updated	<a href="#">ops_admin</a>		Yes	ops.admin	2014-07-08 11:27:25
Role	Granted By	Inherited	Updated By	Updated																						
<a href="#">ops_report_global</a>		No	ops.admin	2019-03-11 14:09:54 -0400																						
<a href="#">ops_report_group</a>		No	ops.admin	2019-03-11 14:09:54 -0400																						
Role	Granted By	Inherits	Updated By	Updated																						
<a href="#">ops_admin</a>		Yes	ops.admin	2014-07-08 11:27:25																						

**Step 3**

Click **Edit**. An **Edit Members** pop-up displays that allows you to assign Roles to the User / Group. For example:



- The Collection window displays all Roles that have not been assigned to this User / Group.
- The Roles List window displays all Roles that have been assigned to this User / Group.

**Step 4**

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

**Step 5**

To assign a Role to the User / Group, move the Role from the **Collection** window to the **Roles** window:

- To move a single Role, double-click it or click it once and then click the > arrow.
- To move multiple Roles, Ctrl-click them and then click the > arrow.
- To move all Roles, click the >> arrow.

To unassign a Role to the User / Group, move the Role from the **Roles** window to the **Collection** window:

- To move a single Role, double-click it or click it once and then click the < arrow.
- To move multiple Roles, Ctrl-click them and then click the < arrow.
- To move all Roles, click the << arrow.

**Step 6**

Click **Save**.

## 22.2.1 Description of Roles

The following table summarizes the roles available in the Controller.

Role Name	Available Functions	Contains Roles
ops_admin	<p>All functions; this is the Universal Controller administrator role. The easiest way to assign full permissions to a user is to add the user to the Administrator Group, which by default is assigned the ops_admin role.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>The ops_admin role contains all other roles. If a user is assigned the ops_admin role, no other roles need to be assigned to that user, and unassigning any other role from the user will not revoke that role.</p> </div>	The ops_admin role contains all other roles.
ops_agent_cluster_admin	<p>Create, read, update, and delete <a href="#">agent clusters</a>.</p> <p>(Also see <a href="#">Agent Cluster Permissions</a>, below.)</p>	
ops_audit_view	<p>Read all <a href="#">Audits</a>.</p> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p>If <a href="#">Audit Owner Read Permitted</a> system property = true, users can view their own audits without having either the <a href="#">ops_admin</a> role or the <a href="#">ops_audit_view</a> role.</p> </div>	
ops_bundle_admin	<ul style="list-style-type: none"> <li>• Create, read, update, and delete <a href="#">Bundles</a> .</li> <li>• View <a href="#">Promotion Targets</a> , including <a href="#">agent mappings</a> .</li> <li>• View <a href="#">Promotion History</a> .</li> <li>• View a record's <a href="#">list of bundles</a> .</li> <li>• View <a href="#">Promotion Schedules</a>.</li> <li>• <a href="#">Add a record to a bundle</a> .</li> <li>• <a href="#">Create bundles by date</a> .</li> <li>• Generate a <a href="#">Bundle Report</a> .</li> </ul> <p>(Also see <a href="#">Bundle Permissions</a> and <a href="#">Promotion Target Permissions</a>, below.)</p>	
ops_dashboard_global	<p>Create, update, and delete <a href="#">Dashboard Details</a> with Everyone visibility; updating includes updating Dashboard visibility.</p>	
ops_dashboard_group	<p>Create, update, and delete <a href="#">Dashboard Details</a> that are visible for a group in which this user is a member; updating includes updating Dashboard visibility.</p>	
ops_dba	<p>Create, update, delete <a href="#">Database Connections</a>.</p> <p>(Also see <a href="#">Database Connection Permissions</a>, below.)</p>	
ops_email_admin	<p>Create, read, update, delete <a href="#">Email Connections</a>.</p> <p>(Also see <a href="#">Email Connection Permissions</a>, below.)</p>	
ops_filter_global	<p>Create <a href="#">Filters</a> with Everyone visibility.</p>	
ops_filter_group	<p>Create <a href="#">Filters</a> that belong to a group of which this user is a member.</p>	

Role Name	Available Functions	Contains Roles
ops_forecast_view	Read <a href="#">Forecast Calendar</a> , <a href="#">Forecasts List</a> , and <a href="#">Forecast Details</a> .	
	<div style="border: 1px solid orange; padding: 5px;"> <p><b>Note</b></p> <p>Users also can read forecast information, without being assigned this role, if they have Read permission for the Task specified in the <a href="#">Forecast Details</a>.</p> </div>	
ops_imex	<a href="#">List Import/Export XML</a> .	
ops_jcl_edit	Modify the JCL contents and update it.	• ops_jcl_view
ops_jcl_view	Submit the JCL view request to the agent and view the contents of it.	
ops_ldap_admin	Read and update <a href="#">LDAP Settings</a> .	
ops_multi_update	<a href="#">Update multiple records</a> .	
ops_oms_admin	Create, update, and delete <a href="#">OMS Servers</a> .	
ops_peoplesoft_admin	Create, read, update, and delete <a href="#">PeopleSoft Connections</a> . (Also see <a href="#">PeopleSoft Connection Permissions</a> , below.)	
ops_promotion_accept_bundle	Accept bundles being promoted to a target server. (The <b>Accept Bundle</b> command is executed on the target server automatically as part of the <b>Promote</b> and <b>Promote Bundle</b> commands and does not involve user interaction.)	
ops_promotion_admin	<ul style="list-style-type: none"> <li>• Create, read, update, and delete <a href="#">Promotion Targets</a> , including agent mappings.</li> <li>• View <a href="#">Bundles</a> .</li> <li>• <a href="#">Refresh Target Agents</a> .</li> <li>• <a href="#">Promote records</a> .</li> <li>• <a href="#">Promote</a> or <a href="#">schedule the promotion</a> of a bundle.</li> <li>• Reschedule, cancel, and delete <a href="#">Promotion Schedules</a>.</li> <li>• <a href="#">Generate a Bundle report</a> .</li> <li>• Accept bundles being promoted to a target server. (The <b>Accept Bundle</b> command is executed on the target server automatically as part of the <b>Promote</b> and <b>Promote Bundle</b> commands and does not involve user interaction.)</li> </ul>	• ops_promotion_accept_bundle
	<div style="border: 1px solid orange; padding: 5px;"> <p><b>Note</b></p> <p>By default, the ops_promotion_admin role also grants Read permission for any type of definition that can be added to a Bundle, given the expectation that a promotion administrator would review the content of a Bundle before promoting it. To change this default behaviour, see the <a href="#">Promotion Read Permission Required</a> Universal Controller property.</p> </div>	
	(Also see <a href="#">Bundle Permissions</a> and <a href="#">Promotion Target Permissions</a> , below.)	
ops_property_admin	Read, update, and delete <a href="#">Universal Controller system properties</a> and <a href="#">Password Settings</a> .	

Role Name	Available Functions	Contains Roles
ops_report_admin	<ul style="list-style-type: none"> <li>Create, read, update, and delete any <a href="#">report</a> , regardless of <a href="#">visibility</a> , in addition to the roles granted by the <a href="#">ops_widget_admin</a> role.</li> <li>Create, update, and delete <a href="#">Dashboard Details</a> with Everyone visibility and <a href="#">Dashboard Details</a> that are visible for a group in which this user is a member; updating includes updating Dashboard visibility.</li> </ul> <p>The <a href="#">Strict Report Create Constraints</a> Universal Controller system property specifies whether or not to restrict report creation only to users with the ops_admin, ops_report_admin, ops_report_group, or ops_report_global role.</p> <p>The <a href="#">Strict Dashboard Create Constraints</a> Universal Controller system property specifies whether or not to restrict Dashboard creation only to users with the ops_admin, ops_report_admin, ops_dashboard_group, or ops_dashboard_global role.</p>	<ul style="list-style-type: none"> <li>ops_dashboard_global</li> <li>ops_dashboard_group</li> <li>ops_report_global</li> <li>ops_report_group</li> <li>ops_report_publish</li> <li>ops_widget_admin</li> </ul>
ops_report_global	Create global <a href="#">reports</a> .	
ops_report_group	Create <a href="#">reports</a> that belong to a group to which this user is a member.	
ops_report_publish	Publish <a href="#">reports</a> . (This role was applicable only to the Controller 5.x release.)	
ops_restore_version	<a href="#">Restore</a> old versions of records.	
ops_sap_admin	Create, read, update, and delete <a href="#">SAP Connections</a> .  (Also see <a href="#">SAP Connection Permissions</a> , below.)	
ops_server_operation_admin	Run <a href="#">Server Operations</a> .	
ops_service	<ul style="list-style-type: none"> <li>Log in and view <a href="#">Home Dashboard</a>. The Active Task Instances By Status <a href="#">widget</a> will remain blank unless the user is assigned the <a href="#">Task Instance Read</a> permission, as the ops_service role does not include access to such data.</li> <li>Read <a href="#">Agents</a>.</li> <li>Read <a href="#">Universal Controller system properties</a>.</li> <li>Read <a href="#">Password Settings</a>.</li> <li>Read <a href="#">LDAP Settings</a> (and run the Test Connection command).</li> <li>Read <a href="#">Single Sign-On Settings</a>.</li> <li>Read <a href="#">Universal Event Templates</a> and related data (Fields and Field Choices).</li> <li>Read <a href="#">Universal Templates</a> and related data (Fields and Field Choices).</li> <li>Read <a href="#">Data Backup/Purge</a>. Unless the user also is assigned the <a href="#">ops_audit_view</a> role, the Audit tab on the <a href="#">Data Backup/Purge</a> Details, which allows for conveniently viewing related Audit records, will not be available.</li> <li>Read <a href="#">Users</a> and related data (Roles, Group Membership, and Permissions).</li> <li>Read <a href="#">Groups</a> and related data (Roles, Group Membership, Child Groups, and Permissions).</li> <li>Read <a href="#">Universal Controller Metrics</a> (Monitoring Web Services).</li> </ul>	
ops_snmp_admin	Create, read, update, and delete <a href="#">SNMP Managers</a> , to which the Controller sends <a href="#">SNMP notifications</a> .  (Also see <a href="#">SNMP Manager Permissions</a> , below.)	
ops_sso_admin	Read and update <a href="#">Single Sign-On Settings</a> .	
ops_universal_event_template_admin	Create, read, update, and delete <a href="#">Universal Event Templates</a> .	<ul style="list-style-type: none"> <li>ops_universal_event_template_view</li> </ul>
ops_universal_event_template_view	Read <a href="#">Universal Event Templates</a> .	
ops_universal_template_admin	Create, read, update, and delete <a href="#">Universal Templates</a> (including Universal Template Event Templates).	<ul style="list-style-type: none"> <li>ops_universal_template_view</li> </ul>
ops_universal_template_view	Read <a href="#">Universal Templates</a> (including Universal Template Event Templates).	

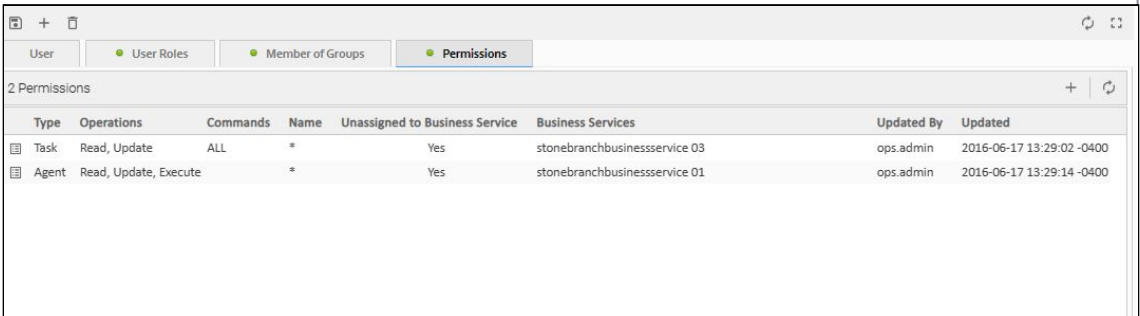
Role Name	Available Functions	Contains Roles
ops_user_admin	Create, read, update, and delete <a href="#">users and groups</a> .	<ul style="list-style-type: none"> <li>ops_user_impersonate</li> </ul>
ops_user_impersonate	Allows an authenticated user to <a href="#">impersonate</a> another user by using the <b>X-Impersonate-User</b> HTTP header on a Web Service request.	
ops_webhook_admin	<ul style="list-style-type: none"> <li>Create, read, update, and delete <a href="#">Webhooks</a>.</li> <li>Enable, Disable, and Assign Execution User for <a href="#">Webhooks</a>.</li> </ul>	<ul style="list-style-type: none"> <li>ops_webhook_view</li> </ul>
ops_webhook_view	Read <a href="#">Webhooks</a> .	
ops_widget_admin	Create, update, and delete <a href="#">Widgets</a> .	

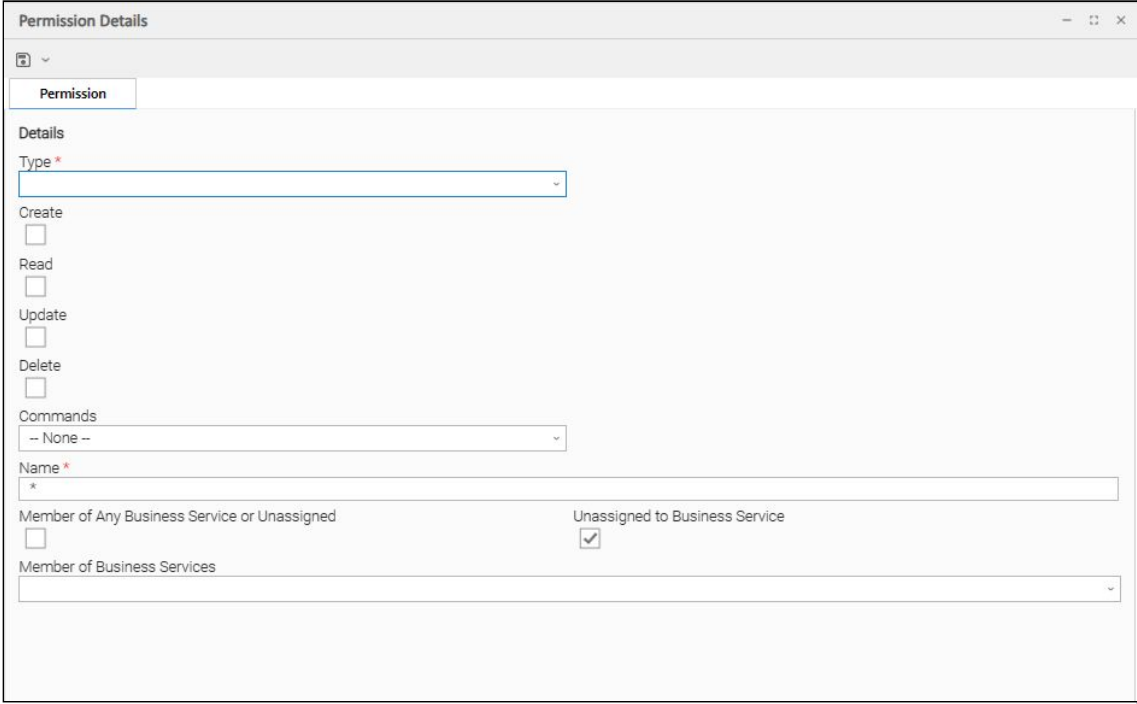
## 22.3 Assigning Permissions to Users or Groups

Permissions control user access to specific types of Controller records, such as task or trigger, and the types of functions that can be performed for those record types, such as create or delete.

You can further narrow down which records each permission applies to by specifying either name parameters or Business Services. For example, a given permission might apply only to tasks whose name begins with "SF," or a permission might apply only to tasks that have been assigned to a specific [Business Service](#) or to tasks that do not belong to any Business Services. See [General Permissions Field Descriptions](#), below, for more details.

To add permissions to a user or group:

<b>Step 1</b>	Open a <a href="#">User</a> or <a href="#">Group</a> record.
<b>Step 2</b>	<p>Click the <b>Permissions</b> tab. A list of permissions assigned to the User / Group displays.</p> <p>For Example:</p>  <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>The <b>Business Services</b> column represents a virtual field whose value is determined by data from both the <b>Member of Business Services</b> field and the <b>Member of Any Business Service or Unassigned</b> field. If you want to apply a sort relating to the data in <b>Business Services</b>, you have to add either or both <b>Member of Business Services</b> and <b>Member of Any Business Service or Unassigned</b> fields as <a href="#">columns</a> and apply the desired sort on either or both of them.</p> </div>

<p><b>Step 3</b></p>	<p>Click <b>New</b>. The Permissions Details pop-up displays.</p> 
<p><b>Step 4</b></p>	<p>Select permissions for the selected user or group.</p> <p>The permissions available differ depending on the <b>Type</b> of permission that you select. Available permissions are Create, Read, Update, Delete, and Execute. For some record types, additional Commands are available. If the permission does not apply to the record type in the Type drop-down, the permission does not appear in the display.</p> <p>These permissions automatically include other permissions:</p> <ul style="list-style-type: none"> <li>• <b>Create</b> permission includes <b>Read</b> and <b>Update</b> permissions.</li> <li>• <b>Update</b> permission includes <b>Read</b> permission.</li> <li>• <b>Delete</b> permission includes <b>Read</b> permission.</li> </ul>

### 22.3.1 General Permissions Field Descriptions

The following fields of information and buttons display in the Permissions Details for all [Permission types](#):

Field Name	Description
<b>Details</b>	This section contains detailed information about the permission.
Name	Applies this permission to records whose name matches the string specified here. <a href="#">Wildcards</a> are supported.
Member of Any Business Service or Unassigned	Applies this permission both to records that belong to any Business Service and to records that do not belong to any Business Service.
Unassigned to Business Service	Applies this permission to records that do not belong to any Business Service. If this option is enabled, the user / user group will have the defined permissions on all records that do not belong to any Business Service.
Member of Business Services	Applies this permission to records that are members of the selected <a href="#">Business Service(s)</a> . Click the lock icon to unlock the field and <a href="#">select Business Services</a> .

<b>Metadata</b>	This section contains <a href="#">Metadata</a> information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Permissions Details that let you perform various actions.
<b>Save</b>	Saves a new record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>Update</b>	Saves updates to the record.
<b>Delete</b>	Deletes the current record.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this record.

## 22.4 Types of Permissions

This section identifies the different types of permissions that you can add to a user or group.

## 22.4.1 Agent Permissions

The screenshot shows the 'Permission Details' window with the following configuration:

- Permission:** Agent
- Details:**
  - Type: Agent
  - Read:
  - Update:
  - Delete:
  - Execute:
  - Commands:
    - None --
    - ALL
    - Resume Agent
    - Suspend Agent
- Unassigned to Business Service:**

Options	Description
Read	Grants permission to read an Agent definition.  The <b>Read</b> check box will be checked automatically if the <a href="#">Business Service Visibility Restricted</a> Universal Controller system property is false.
Update	Grants permission to update an Agent definition. (Only certain fields can be updated.)
Delete	Grants permission to delete an Agent.
Execute	Grants permission to execute a task on an Agent.
Commands	<ul style="list-style-type: none"> <li>ALL: Grants permission to suspend and resume Agents.</li> <li>Resume Agent: Grants permission to resume the ability of a suspended Agent to run tasks.</li> <li>Suspend Agent: Grants permission to suspend the ability of an Agent to run tasks.</li> </ul>

## 22.4.2 Agent Cluster Permissions

(You also can assign Agent Cluster Permissions to a user by assigning the [ops\\_agent\\_cluster\\_admin](#) role to the user.)

Options	Description
Create	Grants permission to create a new Agent Cluster.
Read	Grants permission to read an Agent Cluster definition. <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;">                         The <b>Read</b> check box will be checked automatically if the <a href="#">Business Service Visibility Restricted</a> Universal Controller system property is false.                     </div>
Update	Grants permission to update an Agent Cluster definition. (Only certain fields can be updated.)
Delete	Grants permission to delete an Agent Cluster.

Options	Description
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Resume Agent Cluster: Grants permission to resume the ability of a suspended Agent Cluster to run tasks.</li> <li>• Suspend Agent Cluster: Grants permission to suspend the ability of an Agent Cluster to run tasks.</li> <li>• Resume Agent Cluster Membership: Grants permission to resume the membership of an Agent in an Agent Cluster.</li> <li>• Suspend Agent Cluster Membership: Grants permission to suspend the membership of an Agent from an Agent Cluster.</li> <li>• Resolve Agent Cluster: Grants permission to resolve the Network Alias of an Agent Cluster with a Distribution type of Network Alias.</li> </ul>

### 22.4.3 Application Permissions

**Permission Details**

Permission

**Details**

Type \*  
 Application

Create

Read

Update

Delete

Commands  
 -- None --

-- None --  
 ALL  
 Start  
 Stop  
 Query

Unassigned to Business Service

Options	Description
Create	Grants permission to create a new Application.
Read	Grants permission to read an Application.
Update	Grants permission to update an Application.
Delete	Grants permission to delete an Application.

Options	Description
Commands	<p>See <a href="#">Application Control Tasks</a> for details. Options:</p> <ul style="list-style-type: none"> <li>• ALL: Grants permission to execute a Start, Stop, and Query from the Application resource screen.</li> <li>• Start: Grants permission to execute a Start from the Application resource screen.</li> <li>• Stop: Grants permission to execute a Stop from the Application resource screen.</li> <li>• Query: Grants permission to execute a Query from the Application resource screen.</li> </ul>

### 22.4.4 Bundle Permissions

(You also can assign Bundle Permissions to a user by assigning the [ops\\_bundle\\_admin](#) role to the user.)

The screenshot shows the 'Permission Details' configuration window. The 'Type' is set to 'Bundle'. Under the 'Commands' section, a dropdown menu is open, showing 'ALL' and 'Promote Bundle' as options. The 'Promote Bundle' option is selected. A checkbox labeled 'Unassigned to Business Service' is checked. The 'Member of Business Services' field is empty.

Options	Description
Create	Grants permission to create a Bundle matching both the specified name wildcard and business service membership, including the use of the Create Bundle By Date and Create Bundle By Business Service commands.
Read	<p>Grants permission to read a Bundle matching both the specified name wildcard and business service membership.</p> <ul style="list-style-type: none"> <li>• User can run a Bundle Report for a Bundle matching both the specified name wildcard and business service membership.</li> <li>• User can Read a Promotion Schedule associated with a Bundle matching both the specified name wildcard and business service membership.</li> </ul>
Update	Grants permission to update a Bundle matching both the specified name wildcard and business service membership, including the use of the Add To Bundle command.

Options	Description
Delete	Grants permission to delete a Bundle matching both the specified name wildcard and business service membership.
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Promote Bundle: Grants permission to promote a Bundle.</li> </ul> <p>For the ALL or Promote Bundle command:</p> <ul style="list-style-type: none"> <li>• User can promote a Bundle matching both the specified name wildcard and business service membership, assuming the user has Read permission for the Bundle.</li> <li>• User can Cancel, Reschedule, or Delete a Promotion Schedule associated with a Bundle matching both the specified name wildcard and business service membership, assuming the user has Read permission for the Bundle.</li> </ul>

### 22.4.5 Calendar Permissions

Options	Description
Create	Grants permission to create a new Calendar.
Read	<p>Grants permission to read a Calendar.</p> <p>The <b>Read</b> check box will be checked automatically if the <a href="#">Business Service Visibility Restricted</a> Universal Controller system property is false.</p>

Options	Description
Update	Grants permission to update a Calendar.
Delete	Grants permission to delete a Calendar.
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Copy Calendar: Grants permission to copy a Calendar.</li> </ul>

### 22.4.6 Credential Permissions

Options	Description
Create	Grants permission to create a new Credential.
Read	Grants permission to read a Credential.  The <b>Read</b> check box will be checked automatically if the <a href="#">Business Service Visibility Restricted</a> Universal Controller system property is false.
Update	Grants permission to update a Credential.
Delete	Grants permission to delete a Credential.

Options	Description
Execute	Grants permission to execute a task that requires a Credential.
Commands	N/A

### 22.4.7 Database Connection Permissions

(You also can assign Database Connection Permissions to a user by assigning the [ops\\_dba](#) role to the user.)

Options	Description
Create	Grants permission to create a new Database Connection.
Read	Grants permission to read a Database Connection.  The <b>Read</b> check box will be checked automatically if the <a href="#">Business Service Visibility Restricted</a> Universal Controller system property is false.
Update	Grants permission to update a Database Connection.
Delete	Grants permission to delete a Database Connection.

Options	Description
Execute	Grants permission to execute a task that requires a Database Connection. (Displays only if the <a href="#">Strict Connection Execute Constraints</a> Universal Controller system property is true.)
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Copy Database Connection: Grants permissions to copy a Database Connection.</li> <li>• Test Connection: Grants permission to test a Database Connection.</li> </ul>

## 22.4.8 Email Connection Permissions

(You also can assign Email Connection Permissions to a user by assigning the [ops\\_email\\_admin](#) role to the user.)

Options	Description
Create	Grants permission to create a new Email Connection.
Read	Grants permission to read an Email Connection.  The <b>Read</b> check box will be checked automatically if the <a href="#">Business Service Visibility Restricted</a> Universal Controller system property is false.
Update	Grants permission to update an Email Connection.

Options	Description
Delete	Grants permission to delete an Email Connection.
Execute	Grants permission to execute a task that requires an Email Connection. (Displays only if the <a href="#">Strict Connection Execute Constraints</a> Universal Controller system property is true.)
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Copy Email Connection: Grants permissions to copy an Email Connection.</li> <li>• Test Connection: Grants permission to test an Email Connection.</li> </ul>

### 22.4.9 Email Template Permissions

**Permission Details** - ☐ ×

☰

**Permission**

---

**Details**

Type \*

Create

Read

Update

Delete

Commands

Member of Business Services

Unassigned to Business Service

Options	Description
Create	Grants permission to create a new Email Template.
Read	Grants permission to read an Email Template.  The <b>Read</b> check box will be checked automatically if the <a href="#">Business Service Visibility Restricted</a> Universal Controller system property is false.
Update	Grants permission to update an Email Template.

Options	Description
Delete	Grants permission to delete an Email Template.
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Copy Email Template: Grants permission to copy an Email Template.</li> </ul>

### 22.4.10 OMS Server Permissions

(You also can assign OMS Server Permissions to a user by assigning the [ops\\_oms\\_admin](#) role to the user.)

The screenshot shows the 'Permission Details' configuration window. The 'Type' dropdown is set to 'OMS Server'. Under the 'Commands' section, a dropdown menu is open, showing the following options: '-- None --', 'ALL', 'Resume', and 'Suspend'. The 'ALL' option is currently selected. To the right of the dropdown, there is a checkbox labeled 'Unassigned to Business Service' which is checked. Below the dropdown, there is an empty text input field and another dropdown menu.

Options	Description
Create	Grants permission to create a new OMS Server.
Read	Grants permission to read an OMS Server.  The <b>Read</b> check box will be checked automatically if the <a href="#">Business Service Visibility Restricted</a> Universal Controller system property is false.
Update	Grants permission to update an OMS Server.
Delete	Grants permission to delete an OMS Server.

Options	Description
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to suspend and resume OMS Servers.</li> <li>• Resume: Grants permission to resume the connection of a suspended OMS Server.</li> <li>• Suspend: Grants permission to suspend the connection of an OMS Server.</li> </ul>

### 22.4.11 PeopleSoft Connection Permissions

(You also can assign PeopleSoft Connection Permissions to a user by assigning the [ops\\_peoplesoft\\_admin](#) role to the user.)

Options	Description
Create	Grants permission to create a new PeopleSoft Connection.
Read	Grants permission to read a PeopleSoft Connection.  The <b>Read</b> check box will be checked automatically if the <a href="#">Business Service Visibility Restricted</a> Universal Controller system property is false.
Update	Grants permission to update a PeopleSoft Connection.
Delete	Grants permission to delete a PeopleSoft Connection.

Options	Description
Execute	Grants permission to execute a task that requires a PeopleSoft Connection. (Displays only if the <a href="#">Strict Connection Execute Constraints</a> Universal Controller system property is true.)
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Copy PeopleSoft Connection: Grants permission to copy a PeopleSoft Connection.</li> </ul>

## 22.4.12 Promotion Target Permissions

(You also can assign Promotion Target Permissions to a user by assigning the [ops\\_promotion\\_admin](#) role to the user.)

Permission Details
- ☐ ×

Permission

**Details**

Type \*

Create

Read

Update

Delete

Execute

Commands  
  

-- None --  
ALL  
Refresh Target Agents

Member of Business Services

Options	Description
Create	Grants permission to create a Promotion Target matching both the specified name wildcard and business service membership.
Read	<p>Grants permission to read a Promotion Target matching both the specified name wildcard and business service membership.</p> <p>User can View Target Server Info for Promotion Target matching both the specified name wildcard and business service membership.</p>

Options	Description
Update	Grants permission to update a Promotion Target matching both the specified name wildcard and business service membership.
Delete	Grants permission to delete a Promotion Target matching both the specified name wildcard and business service membership
Execute	Grants permission to promote a Bundle using a Promotion Target matching both the specified name wildcard and business service membership, assuming the user has both Read permission and Promote Bundle command permission for the Bundle.
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Refresh Target Agents: Grants permission to refresh Target Agents.</li> </ul>

### 22.4.13 SAP Connection Permissions

(You also can assign SAP Connection Permissions to a user by assigning the [ops\\_sap\\_admin](#) role to the user.)

Options	Description
Create	Grants permission to create a new SAP Connection.

Options	Description
Read	Grants permission to read an SAP Connection.  The <b>Read</b> check box will be checked automatically if the <a href="#">Business Service Visibility Restricted</a> Universal Controller system property is false.
Update	Grants permission to update an SAP Connection.
Delete	Grants permission to delete an SAP Connection.
Execute	Grants permission to execute a task that requires an SAP Connection. (Displays only if the <a href="#">Strict Connection Execute Constraints</a> Universal Controller system property is true.)
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Copy SAP Connection: Grants permissions to copy an SAP Connection.</li> </ul>

### 22.4.14 Script Permissions

- ☐ ×
**Permission Details**

☰
Permission

**Details**

Type \*

Create

Read

Update

Delete

Execute

Commands  
  

-- None --  
ALL  
Copy Script

Unassigned to Business Service

Member of Business Services

Options	Description
Create	Grants permission to create a new Script.
Read	Grants permission to read a Script.

Options	Description
Update	Grants permission to update a Script.
Delete	Grants permission to delete a Script.
Execute	Grants permission to execute a Script contained by a task.
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Copy Script: Grants permission to copy a Script.</li> </ul>

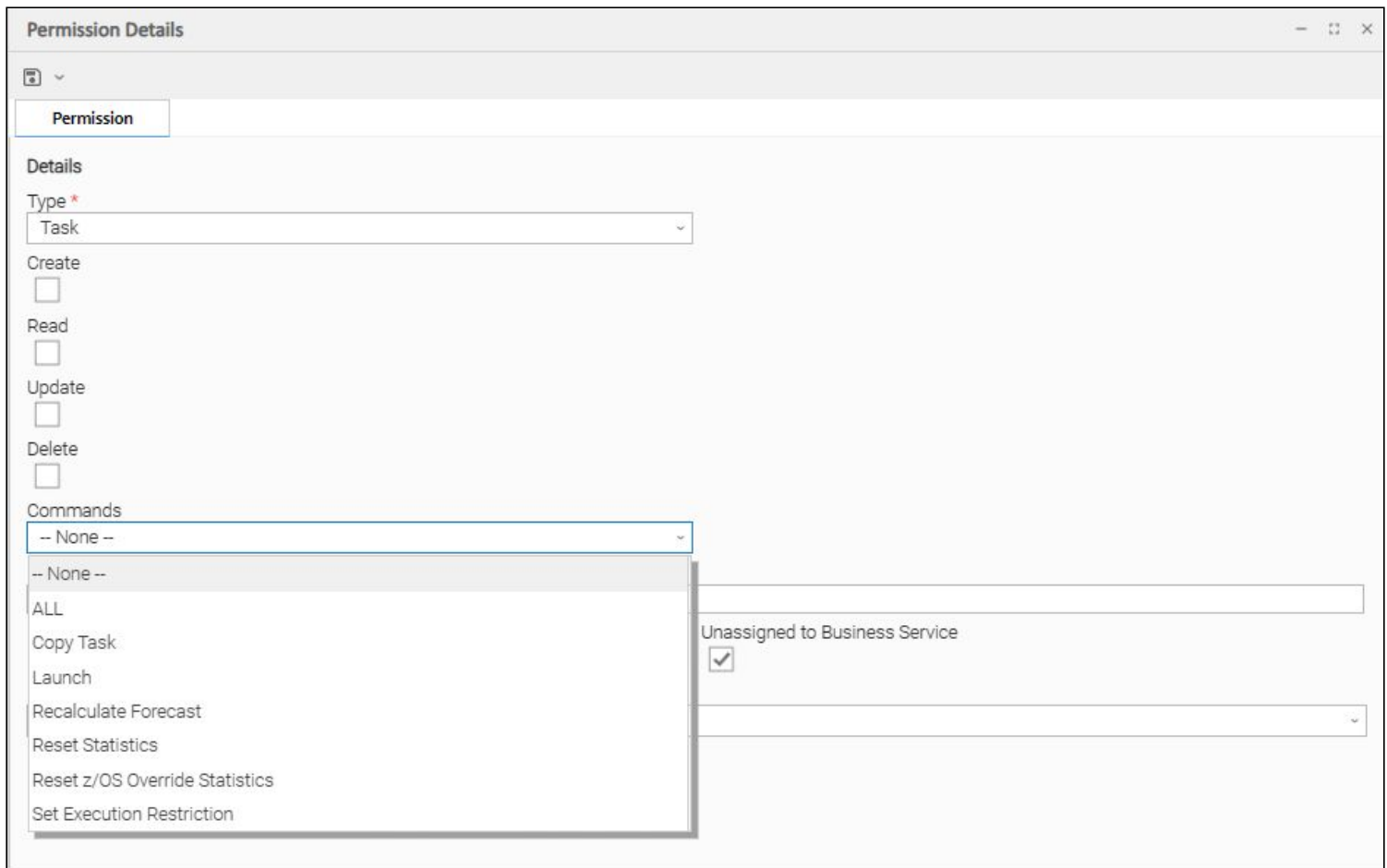
### 22.4.15 SNMP Manager Permissions

(You also can assign SNMP Manager Permissions to a user by assigning the [ops\\_snmp\\_admin](#) role to the user.)

Options	Description
Create	Grants permission to create a new SNMP Manager.
Read	<p>Grants permission to read an SNMP Manager.</p> <p>The <b>Read</b> check box will be checked automatically if the <a href="#">Business Service Visibility Restricted</a> Universal Controller system property is false.</p>

Options	Description
Update	Grants permission to update an SNMP Manager.
Delete	Grants permission to delete an SNMP Manager.
Execute	Grants permission to execute a task that requires an SNMP Manager. (Displays only if the <a href="#">Strict Connection Execute Constraints</a> Universal Controller system property is true.)
Commands	<ul style="list-style-type: none"> <li>ALL: Grants permission to issue any command.</li> <li>Copy SNMP Manager: Grants permissions to copy an SNMP Manager.</li> </ul>

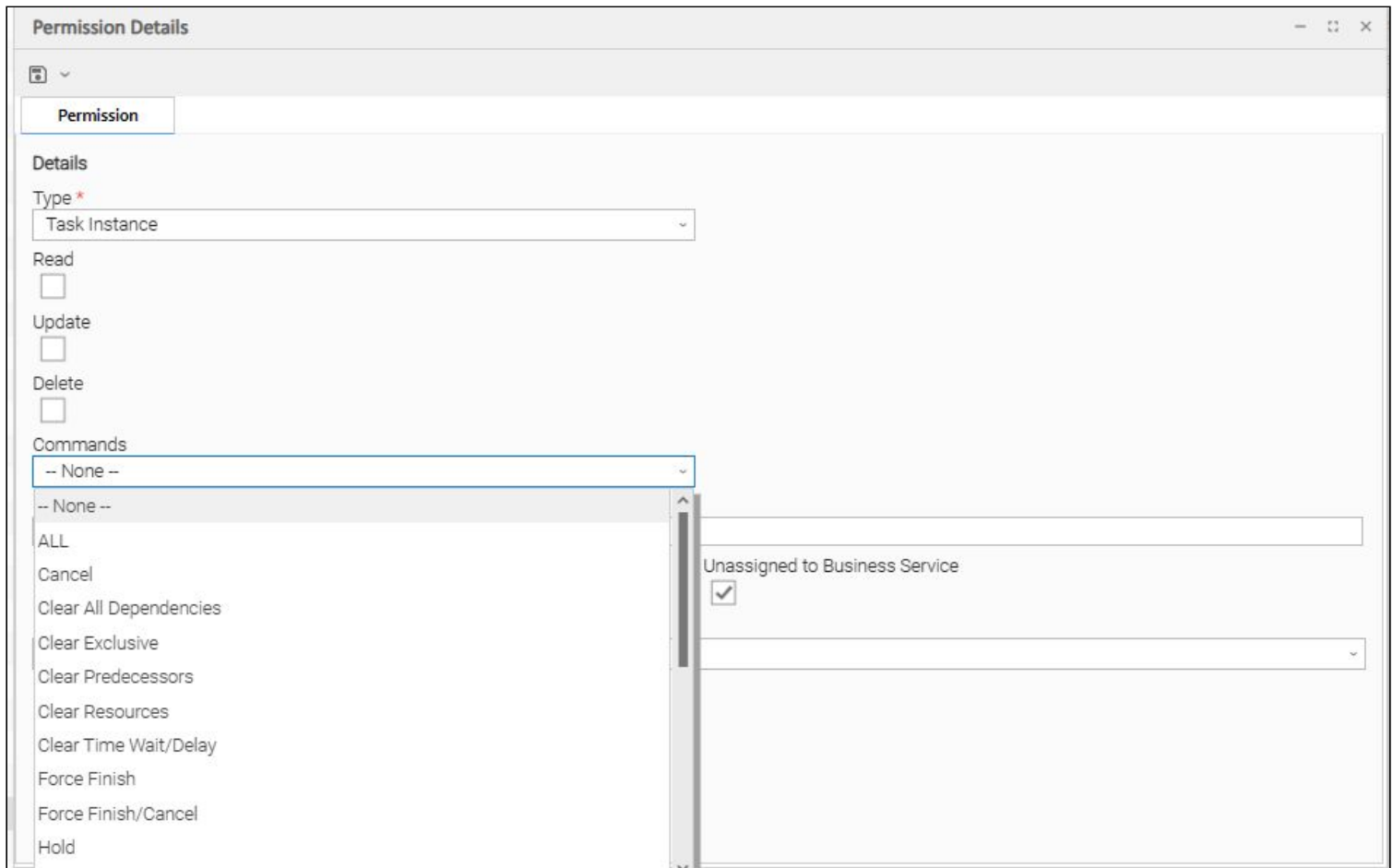
## 22.4.16 Task Permissions



Options	Description
Create	Grants permission to create a new Task.
Read	Grants permission to read a Task.
Update	Grants permission to update a Task.
Delete	Grants permission to delete a Task.

Options	Description
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Copy Task: Grants permission to copy a Task.</li> <li>• Launch: Grants permission to launch a Task.</li> <li>• Recalculate Forecast: Grants permission to recalculate a forecast.</li> <li>• Reset Statistics: Grants permission to reset statistics, including statistics being tracked by each parent Workflow of a Task.</li> <li>• Reset z/OS Override Statistics: Grants permission to reset z/OS override statistics.</li> <li>• Set Execution Restriction: Grants permission to set an execution restriction for a task in a workflow.</li> </ul>

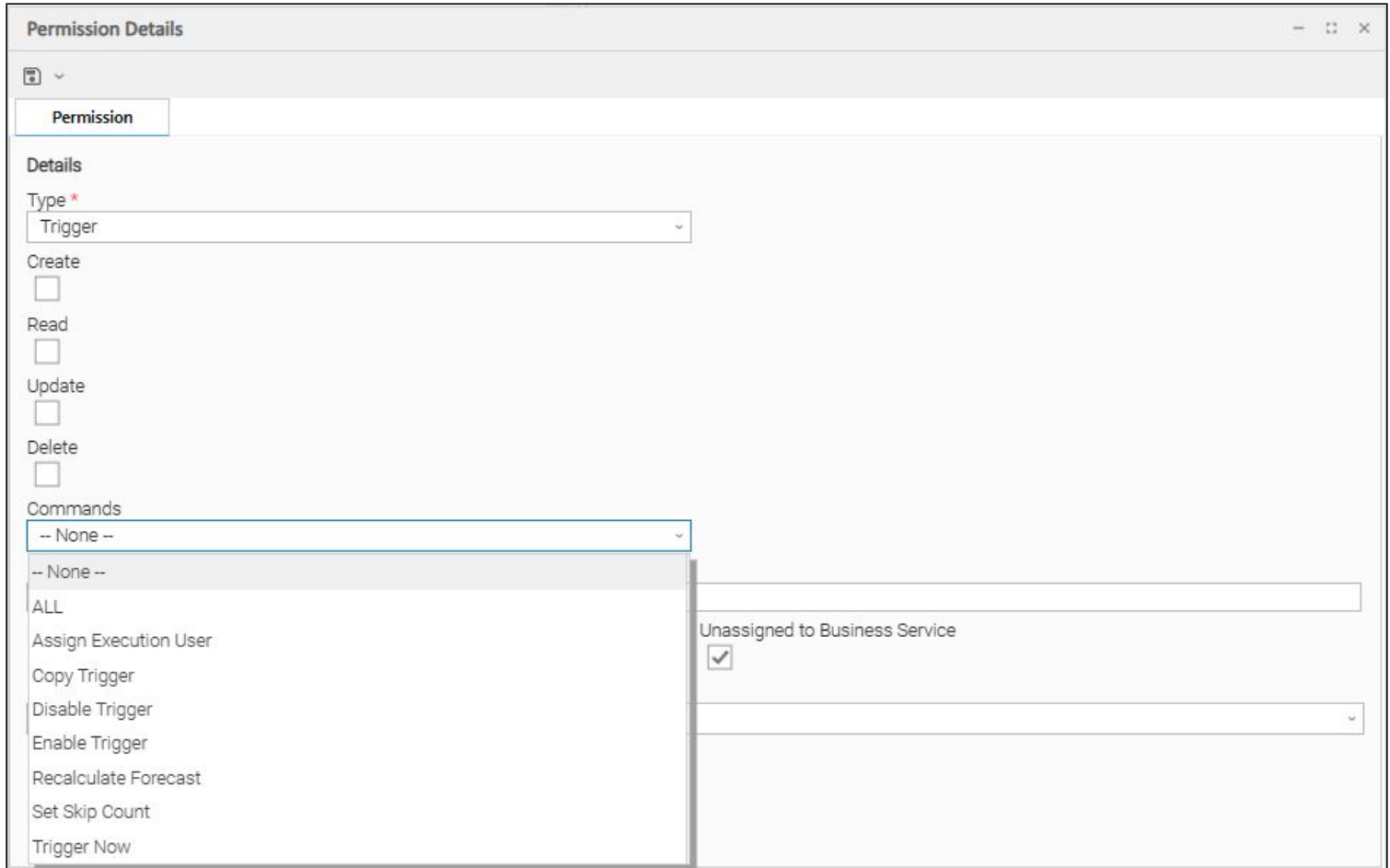
### 22.4.17 Task Instance Permissions



Options	Description
Create	Task instances are created automatically when the task launches, so the <b>Create</b> permission does not appear.
Read	Grants permission to read a Task Instance
Update	Grants permission to update certain fields on a Task Instance.
Delete	Grants permission to delete a Task Instance.

Options	Description
Commands	<p>For command descriptions, see <a href="#">Manually Running and Controlling Tasks</a>.</p> <ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Cancel: Grants permission to cancel a Task Instance.</li> <li>• Clear All Dependencies: Grants permission to clear all dependencies on a Task Instance.</li> <li>• Clear Predecessors: Grants permission to clear all predecessors on a Task Instance.</li> <li>• Clear Exclusive: Grants permission to clear all mutual exclusive dependencies from a Task Instance.</li> <li>• Clear Resources: Grants permission to clear all resource dependencies of a Task Instance.</li> <li>• Clear Time Wait/Delay: Grants permission to clear all Wait To Start and Delay On Start specifications for a Task Instance.</li> <li>• Force Finish: Grants permission to force finish a Task Instance.</li> <li>• Force Finish/Cancel: Grants permission to force finish/cancel a Task Instance.</li> <li>• Hold: Grants permission to put a Task Instance on hold.</li> <li>• Insert Task: Grants permission to insert a task on the workflow monitor of a workflow Task Instance.</li> <li>• Mark as Satisfied: Can mark a dependency as satisfied.</li> <li>• Re-run: Grants permission to re-run a Task Instance.</li> <li>• Release: Grants permission to release a Task Instance from hold.</li> <li>• Release Recursive: Grants permission to release a workflow and all its tasks from hold.</li> <li>• Retrieve Output: Grants permission to execute the Retrieve Output button.</li> <li>• Set Priority Low: Grants permission to change the priority of a task to Low.</li> <li>• Set Priority Medium: Grants permission to change the priority of a task to Medium.</li> <li>• Set Priority High: Grants permission to change the priority of a task to High.</li> <li>• Set Completed: Grants permission to set a Manual Task Instance status to completed.</li> <li>• Set Started: Grants permission to set a Manual Task Instance status to a new started time.</li> <li>• Skip: Grants permission to skip a Task Instance.</li> <li>• Unskip: Grants permission to unskip a Task Instance selected to be skipped.</li> </ul> <div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>Universal Controller will initially check for command permission specifically for the task instance.</p> <p>If no command permission is granted for the task instance, Universal Controller will check if command permission is granted for the parent workflow task instance, and then continue to check for command permission up the workflow task instance hierarchy.</p> </div>

## 22.4.18 Trigger Permissions



Options	Description
Create	Grants permission to create a Trigger.
Read	Grants permission to read a Trigger.
Update	Grants permission to update a Trigger.
Delete	Grants permission to delete a Trigger.
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Assign Execution User: Grants permission to override the execution user of task instances launched by a Trigger.</li> <li>• Copy Trigger: Grants permission to copy a Trigger.</li> <li>• Disable Trigger: Grants permission to disable a Trigger.</li> <li>• Enable Trigger: Grants permission to enable a Trigger.</li> <li>• Recalculate Forecast: Grants permission to recalculate a forecast.</li> <li>• Set Skip Count: Grants permission to perform a Set Skip Count action with/without Update permission.</li> <li>• Trigger Now: Grants permission to Trigger (launch) a task.</li> </ul>

## 22.4.19 Universal Event Permissions

The authorization for publishing and monitoring Universal Events is separate from the Universal Event Template administration and requires the Universal Event permission.

The permission Name wildcard applies to the published Universal Event Name.

The Name of a published global Universal Event is derived from the Universal Event Template Name.

The Name of a published local Universal Event is derived from the Universal Template Name and the Universal Template Event Template Name.

<template-name>.<event-template-name>

The permission Member of Any Business Service or Unassigned, Unassigned to Business Service, and Member of Business Services applies to the published Universal Event Member of Business Services.

For a global Universal Event published through the Web Service API, the publisher optionally specifies the Member of Business Services.

For a local Universal Event published by a Universal Task Instance Extension, the Universal Event inherits the Universal Task Instance Member of Business Services.

The screenshot shows a 'Permission Details' window with the following configuration:

- Permission:** Universal Event
- Type:** Universal Event
- Create:**
- Read:**
- Commands:** - None -
- Member of Any Business Service or Unassigned:**
- Unassigned to Business Service:**
- Member of Business Services:** (Empty dropdown)

Options	Description
Create	Grants permission to publish or push Universal Events.

Options	Description
Read	<p>Grants permission to monitor Universal Events.</p> <div style="border: 2px solid orange; padding: 10px; margin-top: 10px;"> <p><b>Note</b></p> <p>For <a href="#">Pre-Defined Global Universal Events</a>, <a href="#">Webhook</a> and/or <a href="#">Universal Monitor</a> execution users must have "read" permission for the underlying record associated with the Universal Event in addition to "read" permission for the Universal Event itself.</p> <p>For example, the execution user for a Universal Monitor that monitors the <a href="#">UAC - Agent Changed</a> Universal Event for the Universal Agent <code>AGNT0001</code> must have "read" permission for the <a href="#">UAC - Agent Changed</a> Universal Event and "read" permission for the Agent <code>AGNT0001</code>.</p> </div>
Commands	-- None --

### 22.4.20 Variable Permissions

Permission Details
- ☰ ✕

Permission

**Details**

Type \*

Create

Read

Update

Delete

Commands

Name \*

Member of Any Business Service or Unassigned       Unassigned to Business Service

Member of Business Services

Options	Description
Create	Grants permission to create a Variable.

Options	Description
Read	Grants permission to read a Variable.
Update	Grants permission to update a Variable.
Delete	Grants permission to delete a Variable.
Commands	N/A

### 22.4.20.1 Enabling / Disabling Enhanced Variable Security

#### Important

If you have upgraded from a Controller release that did not previously support the Variable permission type, it is important that you review and assign global variable permissions to all appropriate users/groups to avoid impacting existing workload that requires the use of global variables to execute.

By default, enhanced global variable security is enabled; the [Variable Security Enabled](#) Universal Controller system property is set to true.

This controls global variable access the following ways:

- Users with the [ops\\_admin](#) role have full access to all global variables.
- Users with the [ops\\_promotion\\_admin](#) role have **Read** access to all global variables.
- **Create, Read, Update, and Delete** permissions must be assigned to users explicitly if those permissions are not granted through the [ops\\_admin](#) or [ops\\_promotion\\_admin](#) role.
- Only those global variables for which a user has **Read** permission will be visible from the [Variables list](#).
- Only those global variables for which the **Execution User** of a task instance has **Read** permission will be available within the variable scope of a task instance.
- A [Set Variable action](#) for a global variable will require appropriate global variable **Create** or **Update** permission.
- CLI and Web Services APIs will require appropriate global variable permissions depending on whether the command will **Read, Create, or Update** a global variable.
- [Create Bundle By Date](#) command will only add a global variable to the bundle if the:
  - Global variable qualifies for the specified date.
  - User invoking the command has **Read** permission for that global variable.

All defined Variable permissions will be enforced unless enhanced global variable security has been disabled by setting [Variable Security Enabled](#) to false. This allows all global variables to be managed and used by any valid Universal Controller user.

## 22.4.21 Virtual Resource Permissions

Permission Details
- ☐ ×

Permission

**Details**

Type \*  
Virtual Resource

Create

Read

Update

Delete

Execute

Commands  
-- None --  
-- None --  
ALL  
Copy Virtual Resource

Member of Business Services  
Unassigned to Business Service

Options	Description
Create	Grants permission to create a virtual resource.
Read	Grants permission to read a virtual resource.  The <b>Read</b> check box will be checked automatically if the <a href="#">Business Service Visibility Restricted</a> Universal Controller system property is false.
Update	Grants permission to update a virtual resource.
Delete	Grants permission to delete a virtual resource.
Execute	Grants permission to execute a virtual resource.
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Copy Virtual Resource: Grants permission to copy a Virtual Resource.</li> </ul>

## 22.4.21.1 Enabling Enhanced Virtual Resource Security

### Important

If you have upgraded from a Controller release that did not previously support the Virtual Resource permission type, it is important that you review and assign virtual resource permissions to all appropriate users/groups to avoid impacting existing workload that requires the use of virtual resources to execute.

By default, enhanced virtual resource security is enabled; the [Virtual Resource Security Enabled](#) Universal Controller system property is set to true.

This controls virtual resource access the following ways:

- All users will have **Read** access to virtual resources.
- Users with the [ops\\_admin](#) role will have full access to all virtual resources.
- **Create, Update, Delete**, and **Execution** permissions must be explicitly assigned to users if those permissions are not granted through the [ops\\_promotion\\_admin](#) role.
- Only those virtual resources for which the **Execution User** of the task instance has **Execute** permission can be requested by the task instance. Any virtual resource requested by task instances with an **Execution User** that does not have **Execute** permission for that virtual resource will result in the task instance going into [Start Failure](#) status, with status description **Execution for virtual resource "resource-name" prohibited due to security constraints**.
- Set Virtual Resource Limit [System Operation action](#) will require appropriate virtual resource **Update** permission.
- CLI and Web Services APIs will require appropriate virtual resource permissions: Updating a virtual resource limit through the CLI and Web Services APIs will require virtual resource **Update** permission.

All defined Virtual Resource permissions will be enforced unless enhanced virtual resource security has been disabled by setting [Virtual Resource Security Enabled](#) to false. This allows all virtual resources to be managed and used by any valid Universal Controller user.

## 22.4.22 Webhook Permissions

Permission Details
- □ ×

Permission

**Details**

Type \*  
Webhook

Create

Read

Update

Delete

Commands  
-- None --

Name \*  
\*

Member of Any Business Service or Unassigned

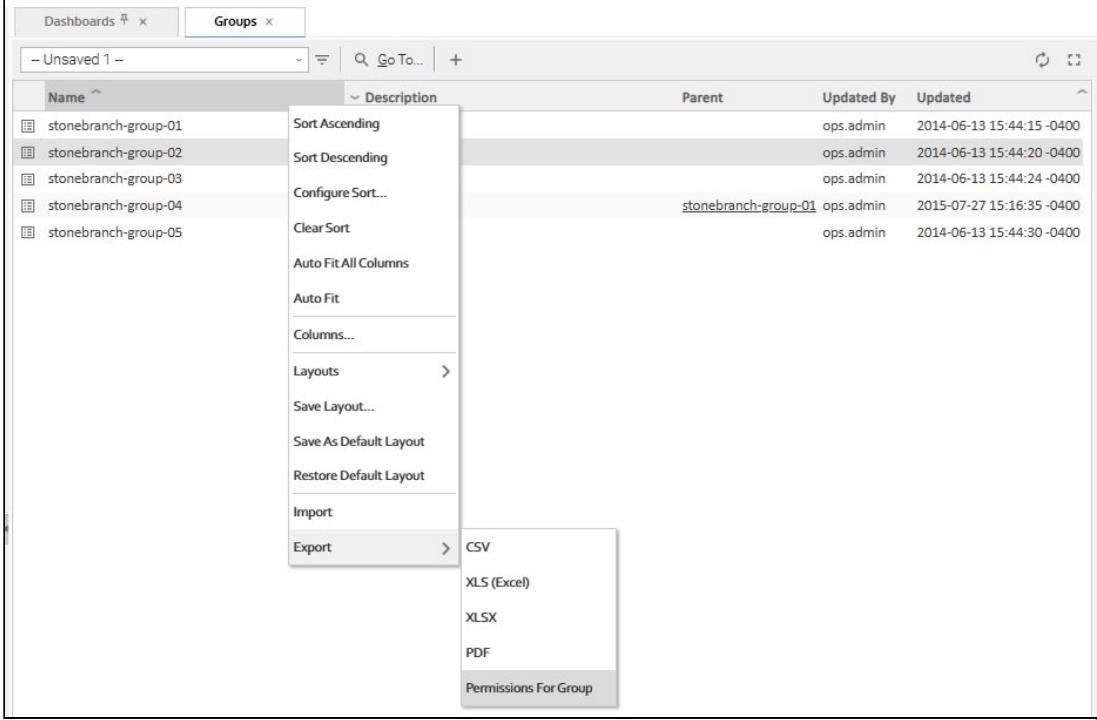
Unassigned to Business Service

Member of Business Services

Options	Description
Create	Grants permission to create a Webhook.
Read	Grants permission to read a Webhook.
Update	Grants permission to update a Webhook.
Delete	Grants permission to delete a Webhook.
Commands	<ul style="list-style-type: none"> <li>• ALL: Grants permission to issue any command.</li> <li>• Enable: Grants permission to enable Webhook.</li> <li>• Disable: Grants permission to disable Webhook.</li> <li>• Assign Execution User: Grants permission to assign execution user to Webhook.</li> </ul>

## 22.5 Exporting Permissions for a Group

The Controller lets you export user groups and their permissions, which then can be imported into another Controller system. Only the permissions listed under the Permissions tab for each group will be exported.

<p><b>Step 1</b></p>	<p>From the <a href="#">Administration</a> navigation pane, select <b>Security &gt; Groups</b>. The Groups list displays.</p>																														
<p><b>Step 2</b></p>	<p>As desired, <a href="#">filter</a> the list to select the group(s) whose permissions you want to export. When you perform the export, all groups matching the filter will be exported.</p>																														
<p><b>Step 3</b></p>	<p>Access the <a href="#">Action menu</a> and select <b>Export &gt; Permissions For Group</b>.</p>  <p>The screenshot shows a table with columns: Name, Description, Parent, Updated By, and Updated. Five groups are listed: stonebranch-group-01 through stonebranch-group-05. The 'Export' menu is open over the table, with 'Permissions For Group' selected.</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Description</th> <th>Parent</th> <th>Updated By</th> <th>Updated</th> </tr> </thead> <tbody> <tr> <td>stonebranch-group-01</td> <td></td> <td></td> <td>ops.admin</td> <td>2014-06-13 15:44:15 -0400</td> </tr> <tr> <td>stonebranch-group-02</td> <td></td> <td></td> <td>ops.admin</td> <td>2014-06-13 15:44:20 -0400</td> </tr> <tr> <td>stonebranch-group-03</td> <td></td> <td></td> <td>ops.admin</td> <td>2014-06-13 15:44:24 -0400</td> </tr> <tr> <td>stonebranch-group-04</td> <td></td> <td>stonebranch-group-01</td> <td>ops.admin</td> <td>2015-07-27 15:16:35 -0400</td> </tr> <tr> <td>stonebranch-group-05</td> <td></td> <td></td> <td>ops.admin</td> <td>2014-06-13 15:44:30 -0400</td> </tr> </tbody> </table>	Name	Description	Parent	Updated By	Updated	stonebranch-group-01			ops.admin	2014-06-13 15:44:15 -0400	stonebranch-group-02			ops.admin	2014-06-13 15:44:20 -0400	stonebranch-group-03			ops.admin	2014-06-13 15:44:24 -0400	stonebranch-group-04		stonebranch-group-01	ops.admin	2015-07-27 15:16:35 -0400	stonebranch-group-05			ops.admin	2014-06-13 15:44:30 -0400
Name	Description	Parent	Updated By	Updated																											
stonebranch-group-01			ops.admin	2014-06-13 15:44:15 -0400																											
stonebranch-group-02			ops.admin	2014-06-13 15:44:20 -0400																											
stonebranch-group-03			ops.admin	2014-06-13 15:44:24 -0400																											
stonebranch-group-04		stonebranch-group-01	ops.admin	2015-07-27 15:16:35 -0400																											
stonebranch-group-05			ops.admin	2014-06-13 15:44:30 -0400																											

To export or import the **Permissions For Group XML**, you must have the [ops\\_admin](#) role or the [ops\\_imex](#) and [ops\\_user\\_admin](#) roles.

If the groups do not exist on the import system, they (and their Permissions) will be created there.

If the groups do exist on the import system, only the description of the groups and the permissions under their **Permissions** tab will be replaced with those from the imported XML.

## 23 Webhooks

### 23.1 Overview

You can register a third party webhook URL (or Task) to trigger when a specific built-in [Universal Event](#) is published.

If you have a custom integration, you can register your webhook to launch an appropriately configured [Universal Task](#).

To allow for the enforcement of read permission for Universal Events, the registration needs to have a security context.

If no Execution User is explicitly assigned, the registration will run under the security context of the user who enabled the registration.

In order for a registration to trigger, the Execution User must have the following authorization.

- Read permission for the published Universal Event and read permission for the underlying record the Universal Event is associated with.
- If a Task is specified instead of a URL, Launch permission for the Task.
- If a Task is specified instead of a URL, any permissions required by the Task Instance, such as Execute permission for Credentials.

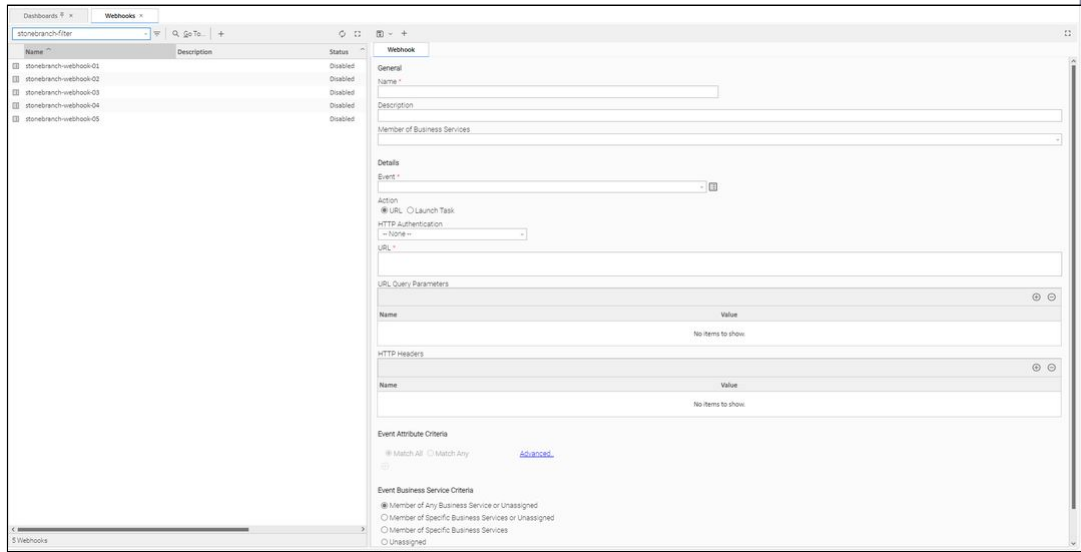
If a Task is specified, the built-in variables outlined below can be used to pass data where appropriate:



- [Task and Task Instance Variables](#)
- [Universal Event Variables](#)
- [Webhook Variables](#)

### 23.2 Creating a Webhook

**Step 1**


From the [Services](#) navigation pane, select **Administration > Webhooks**. The Webhooks list displays:



<b>Step 2</b>	<p>Enter / select Details for a new Webhook, using the field descriptions below as a guide.</p> <ul style="list-style-type: none"> <li>• Required fields display an asterisk ( * ) after the field name.</li> <li>• Default values for fields, if available, display automatically.</li> </ul> <p>To display more of the Details fields on the screen, you can either:</p> <ul style="list-style-type: none"> <li>• Use the scroll bar.</li> <li>• Temporarily hide the list above the Details.</li> <li>• Click the  button above the list to display a pop-up version of the Details.</li> </ul>
<b>Step 3</b>	<p>Click a  button. The Webhook record is added to the database, and all buttons in the Webhook Details are enabled.</p>

**Note**

To [open](#) an existing record on the list, either:

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

**23.2.1 Webhook Details**

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

**Webhook Details**
- □ ×

Webhook

**General**

Name \*

Description

Member of Business Services

**Details**

Event \*  ☰

Action  
 URL  Launch Task

HTTP Authentication

URL \*

URL Query Parameters

Name	Value
No items to show.	

HTTP Headers

Name	Value
No items to show.	

**Event Attribute Criteria**

Match All  Match Any [Advanced](#)

+

**Event Business Service Criteria**

Member of Any Business Service or Unassigned  
 Member of Specific Business Services or Unassigned  
 Member of Specific Business Services  
 Unassigned

Event Member of Business Services

## 23.2.2 Webhook Details Field Descriptions

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

Field Name	Description
<b>General</b>	This section contains general information about the Webhook.
Name	User-defined name of this webhook.
Description	Description of this record. (Maximum = 255 characters.)
Member of Business Services	User-defined; Allows you to select one or more <a href="#">Business Services</a> that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the <a href="#">Business Service Visibility Restricted</a> Universal Controller system property is set to true, depending on your assigned (or inherited) <a href="#">Permissions</a> or <a href="#">Roles</a> , Business Services available for selection may be restricted.
<b>Details</b>	This section contains detailed information about the Webhook.
Event	Specifies the Universal Event Template to be monitored. Only <a href="#">System Templates</a> are allowed.
Action	Type of Action (URL or Launch Task) to be taken when the event changes are published.
HTTP Authentication	If Action is URL; Specifies the HTTP authentication scheme to use.
Credentials	If HTTP Authentication is Basic; Credentials for the URL. Click the details icon to create a new credentials record or view a selected credential's definition.
URL	If Action is URL; Specifies the URL.
URL Query Parameters	If Action is URL; Specifies any query parameters to be encoded as a query string and appended to the URL.
HTTP Headers	If Action is URL; Specifies the HTTP headers.
Task	If Action is Launch Task; Select the task to execute. Click the details icon to view the task definition.
<b>Event Attribute Criteria</b>	This section contains criteria for selecting Universal Events to monitor.
<ul style="list-style-type: none"> <li>• Match All</li> <li>• Match Any</li> </ul>	Specification of a filter for the specific type of Universal Event. <ul style="list-style-type: none"> <li>• Match All</li> <li>• Match Any</li> </ul>
<b>Event Business Service Criteria</b>	This section contains criteria for selecting Universal Events to monitor by their business service membership.

Field Name	Description
<ul style="list-style-type: none"> <li>Member of Any Business Service or Unassigned</li> <li>Member of Specific Business Services or Unassigned</li> <li>Member of Specific Business Services</li> <li>Unassigned</li> </ul>	<p>Criteria for matching on Universal Events by their business service membership.</p> <ul style="list-style-type: none"> <li>Member of Any Business Service or Unassigned</li> <li>Member of Specific Business Services or Unassigned You must specify one or more business services from an Event Member of Business Services drop-down.</li> <li>Member of Specific Business Services You must specify one or more business services from an Event Member of Business Services drop-down.</li> <li>Unassigned</li> </ul>
<b>Metadata</b>	This section contains <a href="#">Metadata</a> information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
<b>Buttons</b>	This section identifies the buttons displayed above and below the Webhook Details that let you perform various actions.
<b>Save</b>	Saves a new Webhook record in the Controller database.
<b>Save &amp; New</b>	Saves a new record in the Controller database and redisplay empty Details so that you can create another new record.
<b>New</b>	Displays empty (except for default values) Details for creating a new record.
<b>Update</b>	Saves updates to the record.
<b>Delete</b>	Deletes the current record.
<b>Enable</b>	Enables the current Webhook.
<b>Disable</b>	Disables the current Webhook.
<b>Refresh</b>	Refreshes any dynamic data displayed in the Details.
<b>Close</b>	For pop-up view only; closes the pop-up view of this task.

## 23.3 URL Action

The URL action facilitates the passing of matched Universal Event details as JSON in the body of the POST request.

### 23.3.1 URL Action JSON Properties

Property	Description	Data Type
attributes	Attributes of the Universal Event. The attributes object contains name/value pairs for each Attribute of the Universal Event.	object The Attribute value will be mapped to a data type using the Attribute type. <ul style="list-style-type: none"> <li>Text → string</li> <li>Integer → number</li> <li>Boolean → boolean</li> </ul>
businessServices	Business Services of the Universal Event. If the Universal Event is published from a universal task instance (via the <a href="#">Universal Extension API</a> ), the Universal Event inherits the business services from the task instance. If the Universal Event is a system-published event, it inherits the business services of the object the event is being published for. If the Universal Event is published via our publish web service API, the business services are specified as part of the request body. If the Universal Event is published via our push web service API, the business services are specified as part of the request query parameters.	JSON array literal with string array values
name	Name of the Universal Event.	string
templateId	UUID of the Universal Event Template for the Universal Event.	string
webhookName	Name of the Webhook that handled the matched Universal Event.	string

### 23.3.2 URL Action JSON Examples

#### Event: UAC - Property Changed

```
{
  "attributes" : {
    "after_value_boolean" : true,
    "name" : "Custom Day Local Indicator Enabled",
    "updated_by" : "ops.admin",
    "before_value_boolean" : false,
    "after_value" : "true",
    "updated" : "2023-04-03 13:03:13 -0400",
    "before_value" : "false",
    "property_name" : "uc.custom_day.local_indicator.enabled"
  },
  "businessServices" : [],
  "name" : "uac_property_changed",
  "templateId" : "4dde3b099053409e81fcae415cb91c02",
  "webhookName" : "stonebranch-webhook-01"
```

```
}

```

#### Event: UAC - Agent Changed

```
{
  "attributes" : {
    "hb_grace_period" : 60,
    "agent_id" : "AGNT0001",
    "log_level" : "Info",
    "ip_address" : "127.0.1.1",
    "version" : "7.4.0.0",
    "suspended" : false,
    "agent_type" : "Linux/Unix",
    "decommissioned" : false,
    "event_type" : "Updated",
    "hb_intvl" : 120,
    "build" : "51",
    "transient" : false,
    "name" : "stonebranch-agent-01 - AGNT0001",
    "updated_by" : "ops.admin",
    "updated" : "2023-04-03 13:32:57 -0400",
    "host_name" : "stonebranch-agent-01",
    "status" : "Active",
    "agent_type_value" : 2
  },
  "businessServices" : [],
  "name" : "uac_agent_changed",
  "templateId" : "850d38176e944ca3ae49a3cb52f98cdb",
  "webhookName" : "stonebranch-webhook-05"
}
```

#### Event: UAC - Task Status Changed

```
{
  "attributes" : {
    "attempt" : 1,
    "calendar_id" : "77171434c0a801c9016d5b2b5d17ddee",
    "created" : "2023-09-27 11:45:32 -0400",
    "current_retry_count" : 0,
    "early_finished" : false,
    "end_time" : "2023-09-27 11:45:39 -0400",
    "execution_user" : "Admin",
    "exit_code" : "0",
    "halt" : false,
    "instance_id" : "1695826587880446240E92L94VWVWP1NY",
    "instance_name" : "stonebranch-linuxunixtask-01",
    "instance_number" : 1,
    "invoked_by" : "Manually Launched",
    "late_finished" : false,
    "late_started" : false,
    "launch_source" : "Launch Task / User Interface",
    "launch_time" : "2023-09-27 11:45:32 -0400",
    "maximum_retries" : 0,
    "retry_indefinitely" : true,

```

```
"security_name" : "stonebranch-linuxunixtask-01",
"simulate" : false,
"source_version" : 32,
"state_changed_time" : "2023-09-27 11:45:39 -0400",
"status" : "Finished",
"status_description" : "Agent is not Active -> State was forced from UNDELIVERABLE to
FINISHED",
"status_value" : 190,
"task_id" : "6a8cfdcc05ad49d1b2e9153e831a3334",
"type" : "Linux/Unix",
"type_value" : 4,
"updated" : "2023-09-27 11:45:33 -0400"
},
"businessServices" : [
  "stonebranchbusinessservice 01",
  "stonebranchbusinessservice 02"
],
"name" : "uac_task_status_changed",
"templateId" : "7fda9c3f452e4fe78a4f9dc3afad8353",
"webhookName" : "stonebranch-webhook-05"
}
```