



Universal Controller 6.3.x

Administration

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1. Administration	3
1.1 Administration Overview	4
1.2 High Availability	5
1.3 Ports Configuration	12
1.4 Universal Controller Properties	13
1.5 LDAP Settings	29
1.6 Data Backup - Purge	37
1.7 Server Operations	42

Administration



Overview



Universal Controller

Administration of Universal Controller

Overview

Universal Controller Sta

Universal Controller Sys

Command Line Interfac



High Availability



Configuration

Introduction

High Availability System

How High Availability Works

What To Do If a Failover Occurs

High Availability Configuration

High Availability Components

LDAP Settings

Data Backup / Purge

Server Operations

Filters



Ports Configuration

Ports Configuration



The information on these pages also is located in the [Universal Controller 6.3.x Administration.pdf](#).

Administration Overview

Universal Controller Administration

Administration of Universal Controller includes:

High Availability	Configuration of Universal Automation Center system as a redundant (multiple Universal Controller cluster node) 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>opswise.properties</code> file and have their values set during installation. To reset the values, you must stop the Controller, edit <code>opswise.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.
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.
Security	Creation of Universal Controller users and user groups and the roles and permissions that can be assigned to them; Business Services that group Controller records into logical groups; and audits of all user interaction with the Controller.

High Availability

- Introduction
- High Availability System
- High Availability Components
 - Cluster Nodes
 - Passive Cluster Node Restrictions
 - Agent
 - Universal Message Service (OMS)
- How High Availability Works
 - Cluster Node Mode
 - High Availability Start-Up
 - Determining Mode of a Cluster Node at Start-up
 - Checking the Active Cluster Node During Operations
 - Checking OMS Connectivity During Operations
- What To Do If a Failover Occurs
 - Viewing Cluster Node Status
- High Availability Configuration
 - Configuring Cluster Nodes
 - Configuring OMS
 - Configuring Agents
 - Configuring Notifications Based on Component Status
- Load Balancer

Introduction

High Availability (HA) of Universal Automation Center means that it has been set up to be a redundant system; in addition to the components that are processing work, there are back-up components available to continue processing through hardware or software failure.

This page describes a High Availability environment, how High Availability components recover in the event of such a failure, and what [actions](#), if any, the user must take.

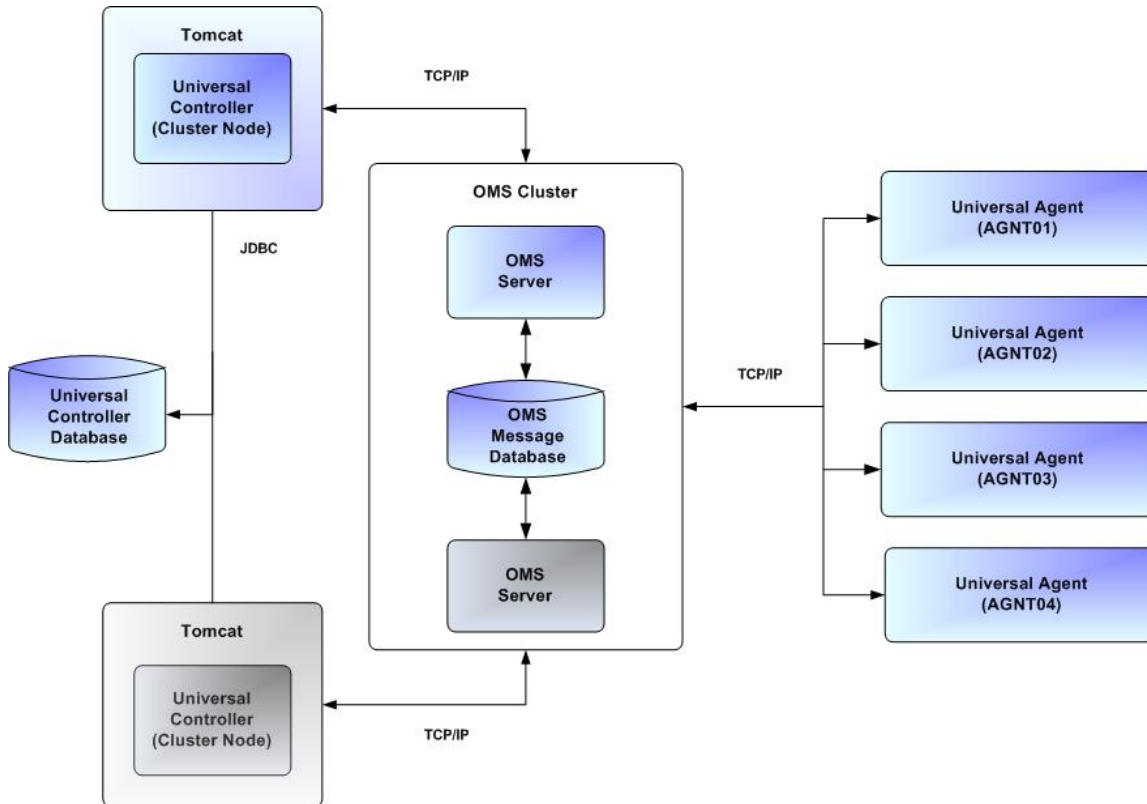
High Availability System

The following illustration is a typical, although simplified, Universal Automation Center system in a High Availability environment.

In this environment, there are:

- Two Universal Controller instances ([cluster nodes](#))
- Two [Universal Message Service](#) (OMS) network communications providers in an OMS cluster
- Four [Universal Agent](#) (Agent) machines

The components in blue are active and operating. The components in gray are available for operations but currently are inactive (passive).



See [High Availability Components](#) for a detailed description of how each component type functions in a High Availability environment.

High Availability Components

This section provides detailed information on the cluster nodes and Agents in a High Availability environment.

Cluster Nodes

Each Universal Automation Center installation consists of one or more instances of Universal Controller; each instance is a cluster node. Only one node is required in a Universal Automation Center system; however, in order to run a High Availability configuration, you must run at least two nodes.

At any given time under High Availability, one node operates in Active mode and the remaining nodes operate in Passive mode (see [Determining Mode of a Cluster Node at Start-up](#)).

An Active node performs all system processing functions; Passive nodes can perform limited processing functions.

Passive Cluster Node Restrictions

Passive cluster nodes cannot execute any automated or scheduled work.

Also, from a Passive node you cannot:

- Perform a workflow instance [insert task](#) operation.
- Perform a [bulk import](#) or [list import](#).
- Run the [LDAP Refresh](#) server operation.
- Update a [task instance](#).
- Update or delete an [enabled trigger](#).
- Update an enabled [Data Backup/Purge](#).
- Update the Task Execution Limit field in [Agent](#) records.
- Update the Task Execution Limit field and Distribution field in [Agent Cluster](#) records.
- Update the user [Time Zone](#).
- List [Composite trigger](#) component events.

However, Passive nodes do let you perform a limited number of processing functions, such as:

- Launch tasks.
- Monitor and display data.
- Access the database.
- Generate reports.

Agent

The Agent runs as a Windows service or Linux/Unix daemon. A cluster node sends a request to the Agent to perform a function. The Agent processes the request, gathers data about the operation of the client machine, and sends status and results back to the node. It performs these functions by exchanging messages with the node.

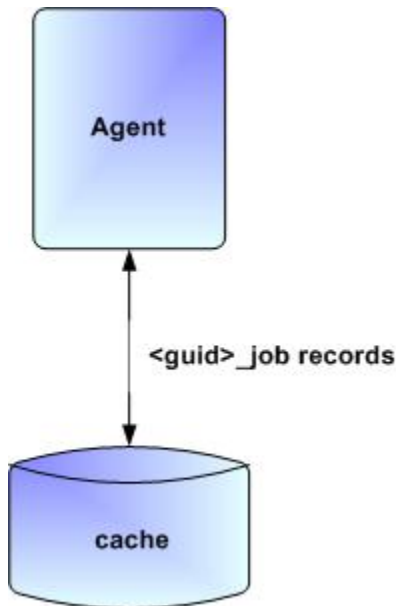
Once an Agent has registered with a node, you can view it by selecting that Agent type from the [Agents & Connections](#) navigation pane of the user interface. A list displays showing all the registered Agents of that type. See [Agents](#) for more information.

If an Agent fails, Universal Broker restarts it. The Agent then attempts to determine what tasks or functions were in process at the time of failure.

In order to support such a determination, Agent task processing includes the following steps:

Step 1	Each time the Agent receives a task, it writes to cache a record called [guid]_job, where [guid] is a unique tracking number assigned to the task instance.
Step 2	As the task runs, the Agent updates the [guid]_job record with status information.
Step 3	When the task run completes, the Agent deletes the [guid]_job record.
Step 4	If an Agent is restarted, it looks in the cache for [guid]_job records. If any are found, the Agent looks at the status. If the record indicates that the job is supposed to be running, the Agent searches the system to locate it. If the Agent is able to locate the task and resume tracking, it continues and marks the task resumed. If the Agent is not able to resume tracking a task, it returns a message to the cluster node, setting the status of the task instance to IN-DOUBT . This then requires manual follow-up to determine the state of the process.

As illustrated below, the Agent reads/writes a record to its agent/cache directory for each task instance that it manages.



Universal Message Service (OMS)

Universal Message Service (OMS) sends and receives messages between the cluster nodes and Agents.

OMS consists of an [OMS Server](#) and an [OMS Administration Utility](#). The OMS clients - cluster nodes and Agents - establish persistent TCP/IP socket connections with the OMS Server.

OMS provides for reliable message communication by persisting all OMS queued messages to persistent storage. The OMS Server maintains OMS queues in an OMS message database that resides on persistent storage.

See [Universal Message Service \(OMS\)](#) for detailed information on OMS.

How High Availability Works

In a High Availability environment, passive cluster nodes play the role of standby servers to the active (primary) cluster nodes server. All running cluster nodes issue heartbeats and check the mode (status) of other running cluster nodes, both when they [start up](#) and continuously [during operations](#). If a cluster node that currently is processing work can no longer do so, one of the other cluster nodes will take over and continue processing.

Each cluster node connects to the same Universal Controller database; however, only the Active cluster node connects to the configured OMS HA cluster. Likewise, each Agent connects to the same OMS HA cluster.

A Universal Controller HA configuration can use a single OMS server, that is not an HA cluster, with the understanding that a single OMS server would introduce a single point of failure. Using an OMS HA cluster is recommended.

See [High Availability Configuration](#) for information on how these connections are made.

Cluster Node Mode

The mode (status) of a cluster node indicates whether or not it is the cluster node that currently is processing work:

Active	Cluster node currently is performing all system processing functions.
Passive	Cluster Node is not connected to OMS but is available to perform all system processing functions, except that it would not be able to exchange data with an Agent.
Offline	Cluster node is not running or is inoperable and needs to be restarted.



Note

Cluster nodes in Passive mode can perform [limited](#) system processing functions.

High Availability Start-Up

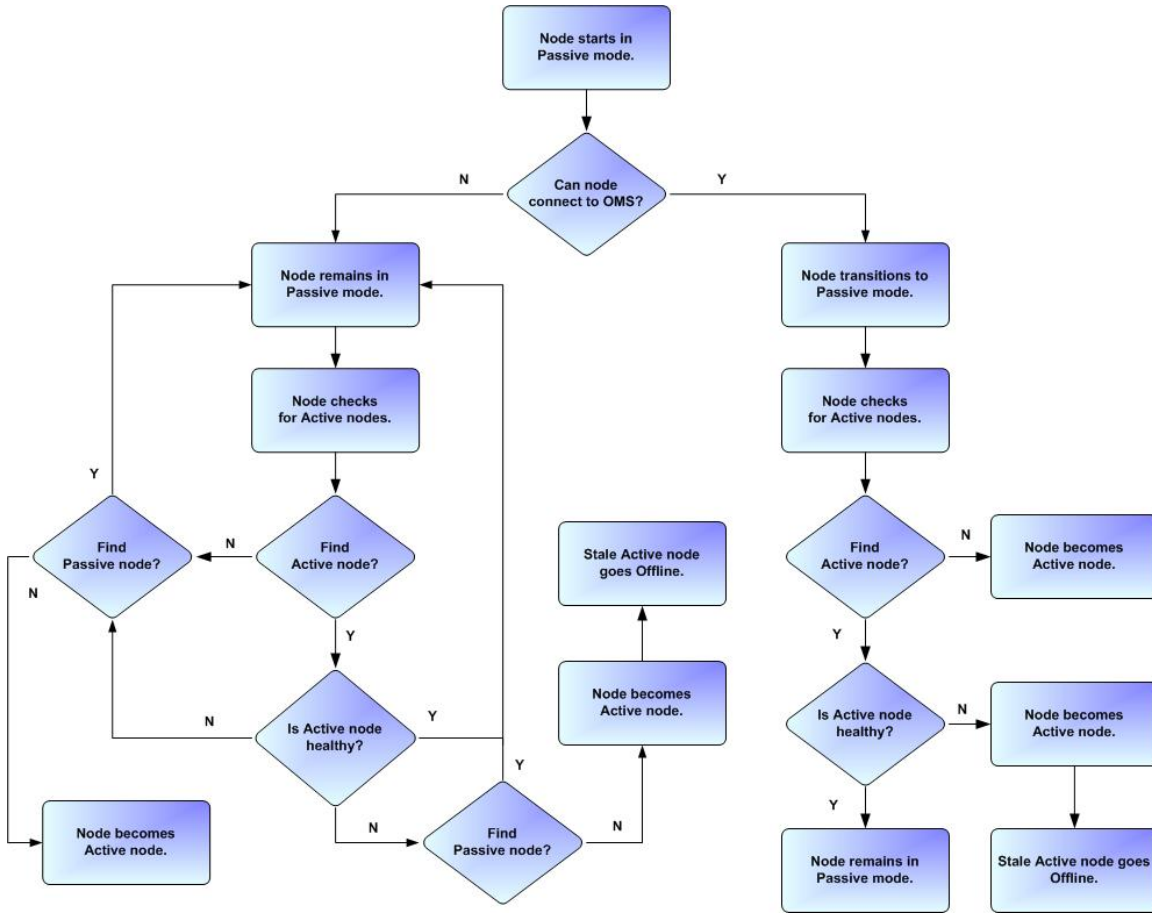
The following steps describe how a High Availability environment starts up:

Step 1	User starts the Cluster Nodes.
Step 2	Each cluster node reads its <code>opswise.properties</code> file.
Step 3	Each cluster node locates and connects to the database and retrieves information about the Universal Automation Center environment.
Step 4	Each cluster node connects to an OMS server.
Step 5	Each Agent connects to an OMS server.

Determining Mode of a Cluster Node at Start-up

A cluster node starts in [Passive](#) mode. It then determines if it should remain in [Passive](#) mode or switch to [Active](#) mode.

The following flow chart describes how a cluster node determines its mode at start-up:



Note
 A cluster node is considered "healthy" or "stale" based on its heartbeat timestamp.

Checking the Active Cluster Node During Operations

When all cluster nodes have started, each one continuously monitors the heartbeats of the other running cluster nodes.

If a **Passive** cluster node determines that the **Active** cluster node is no longer running, the **Passive** cluster node automatically takes over as the **Active** cluster node based upon the same criteria described above.

This determination is made as follows:

Step 1	The Active cluster node sends a heartbeat by updating a timestamp in the database. The heartbeat interval is 10 (seconds).
Step 2	All Passive cluster nodes check the Active cluster node's timestamp to determine if it is current. (This check runs every 60 seconds.)
Step 3	If a Passive cluster node determines that the Active cluster node's timestamp is stale, failover occurs: the Passive cluster node changes the mode of the Active cluster node to Offline and takes over as the Active cluster node. If more than one cluster node is operating in Passive mode, the first cluster node eligible to become Active that determines that the Active cluster node is not running becomes the Active cluster node. A stale cluster node is one whose timestamp is older than 5 minutes.

Checking OMS Connectivity During Operations

When a cluster node is not processing work, it is possible that its OMS Server connection can be silently dropped.

To detect this, a cluster node issues a heartbeat through the OMS server, and back to itself, every 30 seconds if no outgoing activity to the OMS server has occurred. The difference between the time the Controller issues the heartbeat and the time it receives the heartbeat is logged in the **opwise.log**.

What To Do If a Failover Occurs

A Passive cluster node taking over as an Active cluster node is referred to as failover. If failover occurs, the event is invisible unless you are using the Active cluster node in a browser.

If you are using the Active cluster node in a browser and the cluster node fails, you will receive a browser error. In this case, take the following steps to continue working:

Step 1	Access the new Active cluster node in your browser. To determine which cluster node is now Active, check the Mode column on the Cluster Nodes list in the user interface (see Viewing Cluster Node Status , below).
Step 2	If you were adding, deleting, or updating records at the time of the failure, check the record you were working on. Any data you had not yet saved will be lost.



Note

Running the [Pause Cluster Node Server Operation](#) does not induce a failover event. You cannot pause an Active cluster node to create a failover to a Passive cluster node.

Viewing Cluster Node Status

To view a list of all cluster nodes, from the [Agents & Connections](#) navigation pane select **System > Cluster Nodes**. The Cluster Nodes list identifies all registered cluster nodes. The **Mode** column on the list identifies the current mode (status) of all cluster nodes.

Node Id	Mode	Start Time	Timestamp	Uptime	Host Name	IP Address	Release	Build Id	Build Date
opswise:88-opswise	Active	2014-06-19 10:47:19 -0400	2014-07-02 11:11:32 -0400	13 Days 0 Hour 24 Minutes 12 Seconds	opswise6	188.174.31.74	6.1.0.0	build.200	06-18-2014_0800



Note

A cluster node becomes registered the first time it starts. From then on, it always appears in the Cluster Nodes list, regardless of its current mode.

Click any cluster node on the list to display Details for that cluster node below the list. (See [Cluster Nodes](#) for a description of the fields in the Details.)

High Availability Configuration

To achieve High Availability for your Universal Automation Center system, you must configure the cluster nodes, OMS, and Agents.

Configuring Cluster Nodes

All cluster nodes in a High Availability environment must point to the same database by making sure the following entries in their `opswise.properties` files are the same.

For example:

```
opswise.db.name=opswise
opswise.db.rdbms=mysql
opswise.db.url=jdbc:mysql://10.10.1.1/
```

Configuring OMS

OMS HA cluster configuration is described in the [OMS Reference Guide](#).

The Universal Controller OMS Server definitions specify an OMS HA cluster as an ordered, comma-separated list of OMS Server addresses, one for each member of the OMS HA cluster.



OMS configuration

Do not define multiple OMS Server records for individual OMS HA cluster members. An OMS HA cluster must be defined as a single OMS Server record with an OMS address list containing each OMS HA cluster member.

As an example, if an OMS HA cluster contains three OMS Servers, `oms1.acme.com`, `oms2.acme.com`, and `oms3.acme.com`, the Universal Controller OMS Server definition would be defined with an OMS Server address value of `oms1.acme.com,oms2.acme.com,oms3.acme.com`.

Configuring Agents

If you want to configure an Agent to be able to access an OMS HA cluster, you must configure the Universal Automation Center Agent (UAG) [OMS_SERVERS](#) configuration option.

Configuring Notifications Based on Component Status

You can configure the Controller to generate Email Notifications or SNMP Notifications based on the mode of your [cluster nodes](#), [OMS Servers](#), and [Agents](#).

Load Balancer

If you are using a load balancer in your High Availability environment, it can utilize the following HTTP requests:

<p><code>http(s)://serverhost:[Port]/opswise/is_active_node.do</code></p>	<p>If a cluster node is active, this URL returns the status 200 (OK) and a simple one word content of ACTIVE.</p> <p>If a cluster node is not active, this URL returns the status 403 (cluster node is not active) and lists the actual mode of the cluster node: PASSIVE or OFFLINE.</p>
<p><code>http(s)://serverhost:[Port]/opswise/ops_node_info.do</code></p>	<p>This URL returns information about a cluster node:</p> <ul style="list-style-type: none"> • Node: serverhost.com:8080-opswise • Release: 6.1.1.0* • Build Id: 10-10-2014_1129 • Mode: Active • Host Name: serverhost.com • Host IP: 192.168.50.50 • Uptime: 7 Days 3 Hours 22 Minutes 37 Seconds

Ports Configuration

Ports Configuration

Ports configured for Universal Controller 6.3.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


Universal Controller Properties

- [Overview](#)
- [Universal Controller Start-up Properties \(opswise.properties\)](#)
 - [Sample opswise.properties File](#)
- [Universal Controller System Properties](#)
 - [Overriding Universal Controller System Properties](#)
- [Command Line Interface \(CLI\) Properties](#)

Overview

Universal Controller contains three types of configurable properties:

Universal Controller Start-up Properties (opswise.properties)	<p>Universal Controller start-up properties are the default properties contained in the <code>opswise.properties</code> 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 <code>opswise.properties</code>, and restarting the Controller. The changes will take effect after the restart (see Starting and Stopping Universal Controller).</p>
Universal Controller System Properties	<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>
Command Line Interface (CLI) Properties	<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.



Universal Controller Start-up Properties (opswise.properties)


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

The `opswise.properties` file resides here:

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

Property Name	Description	Default
For MySQL:		
<code>opswise.db.rdbms=mysql</code>	Database type. Specify this property if you are using a MySQL database.	
<code>opswise.db.url=jdbc:mysql://localhost/</code>	JDBC connect URL. Specify this property if you are using a MySQL database.	
For SQLServer		

<pre>opswise.db.rdbms=sqlserver</pre>	<p>Database type. Specify this property if you are using a SQLServer database.</p>	
<pre>opswise.db.url=jdbc:sqlserver://localhost:1433;DatabaseName=opswise</pre>	<p>JDBC connect URL. Specify this property if you are using a SQLServer database.</p>	
For Oracle		
<pre>opswise.db.rdbms=oracle</pre>	<p>Database type. Specify this property if you are using an Oracle database.</p>	
<pre>opswise.db.url=jdbc:oracle:thin:@//localhost:1521/@oracle.db.name@</pre>	<p>JDBC connect URL. Specify this property if you are using an Oracle database.</p>	
For LDAP:		
<pre>opswise.ldap.groups.filter_indirect=</pre>	<p>When this property is set to true, any Groups synchronized indirectly (that is, through a User's memberOf attribute) will honor the Group search filter and Group OU filters under the LDAP Advanced Settings section.</p>	true
<div style="background-color: #ffffcc; padding: 5px;"> <p> Note The code default for this property, which is used if this property is not set, is false.</p> </div>		
<pre>opswise.ldap.groups.single_parent_per_child=</pre>	<div style="background-color: #ffe6e6; padding: 5px;"> <p> IMPORTANT This property should only be set to true 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
For All Databases		
<pre>opswise.db.user=</pre>	<p>Login ID that the Controller will use to log in to your database.</p>	root
<pre>opswise.db.password.encrypted=</pre>	<p>Encrypted version of <code>opswise.db.password</code> that will replace <code>opswise.db.password</code> in the <code>opswise.properties</code> file upon start-up.</p>	(none)

<code>opswise.db.name=</code>	<p>Name for the Controller database.</p> <div style="background-color: #ffe6e6; padding: 10px; border: 1px solid #ccc;">  IMPORTANT If you specify a database name in this property and in <code>opswise.db.url=</code>, the names must be the same. </div>	opswise
<code>opswise.date.formats</code>	<p>Accepted input date formats for Date Functions and Stored Procedure parameters. For example: <code>opswise.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.</p>	
<code>opswise.db.pooler.connections=</code>	<p>Minimum number of connections that can remain idle in the pool without extra connections being created, or zero to create none.</p>	25
<code>opswise.db.pooler.connections.max=</code>	<p>Maximum number of active connections that can be allocated from this pool at the same time, or negative for no limit.</p>	100
<code>opswise.overdue.timer.startup.threshold=</code>	<p>Maximum number of days after which an overdue trigger is considered "stale/expired."</p>	2
<code>opswise.servlet.port=</code>	<p>Port number used by Tomcat.</p>	8080
<code>opswise.ui.session_timeout=</code>	<p>Default browser session timeout, in minutes. To use the Tomcat session configuration (default 30 minutes), set this property to 0.</p>	30
<code>opswise.trustmanager.algorithm=</code>	<p>Java trust manager algorithm.</p> <ul style="list-style-type: none"> For IBM AIX, the value must be <code>IBMX509</code>. For all other platforms, use the default value. 	SunX509
<code>opswise.trustmanager.provider=</code>	<p>Java trust manager provider.</p> <ul style="list-style-type: none"> For IBM AIX, the value must be <code>IBMJSSE2</code>. For all other platforms, use the default value. 	SunJSSE
<code>opswise.trustmanager.truststore=</code>	<p>Location of the keystore which holds certificates and keys.</p>	properties/ca
<code>opswise.trustmanager.truststore.password=</code>	<p>Password (if required) for the keystore.</p>	changeit

Sample opswise.properties File

```

# DB
opswise.db.rdbms=mysql
opswise.db.url=jdbc:mysql://localhost/
# MYSQL
# opswise.db.rdbms=mysql
# opswise.db.url=jdbc:mysql://localhost/
# MS SQLSERVER
# opswise.db.rdbms=sqlserver
# opswise.db.url=jdbc:sqlserver://localhost:1433;DatabaseName=opswise
# ORACLE
# opswise.db.rdbms=oracle
# opswise.db.url=jdbc:oracle:thin:@//localhost:1521/@oracle.db.name@
#
# COMMON
#
# trust manager algorithm & provider
#opswise.trustmanager.algorithm=SunX509
#opswise.trustmanager.provider=SunJSSE
#
opswise.db.user=root
opswise.db.password=pswd
opswise.db.name=opswise
opswise.db.pooler.connections=2
opswise.db.pooler.connections.max=40
opswise.overdue.timer.startup.threshold=3
opswise.servlet.port=8080
opswise.ui.session_timeout=30

```

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. You can reset these properties any time after the Controller is in operation without having to stop and restart the Controller.



Note

You must be assigned the `ops_admin` role in order to reset these properties.

Step 1 From the **Administration** navigation pane, select **Configuration > Properties**. The Properties list displays.


85 Properties		Updated By	Updated
Name ^	Value		
Administrator Email Address		ops.system	2016-04-14 11:11:42 -0400
Agent Cache Retention Period In Days	7	ops.system	2016-04-14 11:11:42 -0400
Agent Heartbeat Interval In Seconds	120	ops.system	2016-04-14 11:11:42 -0400
Agent Prefix	AGNT	ops.system	2016-04-14 11:11:42 -0400
Automatically Create Versions	true	ops.system	2016-04-14 11:11:42 -0400
Automatically Skip Conflicting Multi-Origin Paths	false	ops.system	2016-04-14 11:11:42 -0400
Broadcast On Hold If Cluster Suspended	true	ops.system	2016-04-14 11:11:42 -0400
Calendar Preview Period In Years	2	ops.system	2016-04-14 11:11:42 -0400
Client Export Fetch Limit	1000	ops.system	2016-04-14 11:11:42 -0400
Compress Bundle Promotion Payload	false	ops.system	2016-04-14 11:11:42 -0400
Confirm Exit	true	ops.system	2016-04-14 11:11:42 -0400
Confirm Update For Tasks In Workflows	false	ops.system	2016-04-14 11:11:42 -0400
Continue Monitoring Completed Workflows In Workflow Monitor	false	ops.system	2016-04-14 11:11:42 -0400
Copy Notes To Task Instances For Reporting	false	ops.system	2016-04-14 11:11:42 -0400
Create Version On Related List Change	true	ops.system	2016-04-14 11:11:42 -0400
Critical Path Calculations Permitted	false	ops.system	2016-04-14 11:11:42 -0400
Critical Path Color	#FF0000	ops.system	2016-04-14 11:11:42 -0400
Critical Path Dynamic Calculation Threshold In Seconds	0	ops.system	2016-04-14 11:11:42 -0400
Critical Path Monitor Polling Interval In Seconds	300	ops.system	2016-04-14 11:11:42 -0400
Critical Path Monitor Polling Threshold In Seconds	60	ops.system	2016-04-14 11:11:42 -0400
Data Backup/Purge Export Path		ops.system	2016-04-14 11:11:42 -0400
Disable Tab Indicators	false	ops.system	2016-04-14 11:11:42 -0400
Exclude Holidays For Business Days	false	ops.system	2016-04-14 11:11:42 -0400
Export Agent References	false	ops.system	2016-04-14 11:11:42 -0400
Export Path		ops.system	2016-04-14 11:11:42 -0400
Expose Resolved Script	false	ops.system	2016-04-14 11:11:42 -0400
Expose UDM Script	false	ops.system	2016-04-14 11:11:42 -0400
Flatten Reference List Fields In Chart Reports	false	ops.system	2016-04-14 11:11:42 -0400
Forecast Period In Days	31	ops.system	2016-04-14 11:11:42 -0400
LDAP Synchronization Enabled	false	ops.system	2016-04-14 11:11:42 -0400
License Key		ops.system	2016-04-14 11:11:42 -0400
List Qualifying Times Format	EEEE, MMMMMM dd, yyyy HH:mm:ss z	ops.system	2016-04-14 11:11:42 -0400
Lock Account After Maximum Login Attempts	false	ops.system	2016-04-14 11:11:42 -0400
Log File Retention Period In Days	5	ops.system	2016-04-14 11:11:42 -0400
Log Level	INFO	ops.system	2016-04-14 11:11:42 -0400
Maximum Login Attempts	5	ops.system	2016-04-14 11:11:42 -0400
Maximum Nested Variable Depth	25	ops.system	2016-04-14 11:11:42 -0400
Maximum Processing Threads	1000	ops.system	2016-04-14 11:11:42 -0400
Maximum Timer Threads	300	ops.system	2016-04-14 11:11:42 -0400
Node Time Display	Yes	ops.system	2016-04-14 11:11:42 -0400
Node Time Display Background Color	White	ops.system	2016-04-14 11:11:42 -0400
Node Time Display Color	Black	ops.system	2016-04-14 11:11:42 -0400
Node Time Display Time Zone	Server	ops.system	2016-04-14 11:11:42 -0400
Password Expiration Enabled	false	ops.system	2016-04-14 11:11:42 -0400
Password Expiration In Days	30	ops.system	2016-04-14 11:11:42 -0400
Perform Actions On Defined For Tasks Within Skipped Workflow	false	ops.system	2016-04-14 11:11:42 -0400
Perform Actions On Halt	true	ops.system	2016-04-14 11:11:42 -0400
Platform Log Level	WARN	ops.system	2016-04-14 11:11:42 -0400
Promotion Read Permission Required	false	ops.system	2016-04-14 11:11:42 -0400
Promotion Schedule Retention Period In Days	7	ops.system	2016-04-14 11:11:42 -0400
Promotion Strict Mode	1	ops.system	2016-04-14 11:11:42 -0400
Purge Activity By Primary Key	true	ops.system	2016-04-14 11:11:42 -0400
Purge Activity By Primary Key Limit	500	ops.system	2016-04-14 11:11:42 -0400
Retrieve Output Default Maximum Lines	100	ops.system	2016-04-14 11:11:42 -0400
Scheduled Report 3D Pie Chart	No	ops.system	2016-04-14 11:11:42 -0400
Scheduled Report Fetch Limit	1000	ops.system	2016-04-14 11:11:42 -0400
Scheduled Report Image Height	500	ops.system	2016-04-14 11:11:42 -0400
Scheduled Report Image Width	750	ops.system	2016-04-14 11:11:42 -0400
Scheduled Report Inline Image	Yes	ops.system	2016-04-14 11:11:42 -0400
Scheduled Report PDF Orientation	Landscape	ops.system	2016-04-14 11:11:42 -0400
Scheduled Report PDF Size	Letter	ops.system	2016-04-14 11:11:42 -0400
SMTP Debug	false	ops.system	2016-04-14 11:11:42 -0400
Start Server Paused	false	ops.system	2016-04-14 11:11:42 -0400
Stop Unknown Application Monitors	false	ops.system	2016-04-14 11:11:42 -0400
System Default Activity Quick Filters	Active=180,190,200,Blocked=10,20,23,30,33,60,Completed=180,190,200,Problem=35,81,99,110,120,125,130,140,	ops.system	2016-04-14 11:11:42 -0400
System Default CLI Bulk Import Path	/opt/apache-tomcat-8.0.18/opswise_import	ops.system	2016-04-14 11:11:42 -0400
System Default Command Line Access	Yes	ops.system	2016-04-14 11:11:42 -0400
System Default Confirm Launch Command	Yes	ops.system	2016-04-14 11:11:42 -0400
System Default Confirm Task Instance Commands	No	ops.system	2016-04-14 11:11:42 -0400
System Default Maximum Versions	100	ops.system	2016-04-14 11:11:42 -0400
System Default Report Group Threshold	10	ops.system	2016-04-14 11:11:42 -0400
System Default Trigger Simulate	false	ops.system	2016-04-14 11:11:42 -0400
System Default Update Virtual Resource Limit On Promotion	Yes	ops.system	2016-04-14 11:11:42 -0400
System Default Wait/Delay Workflow Only	Yes	ops.system	2016-04-14 11:11:42 -0400
System Default Web Browser Access	Yes	ops.system	2016-04-14 11:11:42 -0400
System Default Web Service Access	Yes	ops.system	2016-04-14 11:11:42 -0400
System Identifier		ops.system	2016-04-14 11:11:42 -0400
System Identifier Background Color	Black	ops.system	2016-04-14 11:11:42 -0400
System Identifier Color	White	ops.system	2016-04-14 11:11:42 -0400
Track Counts For Unlimited Execution Limit	false	ops.system	2016-04-14 11:11:42 -0400
Use Checksum Validation	false	ops.system	2016-04-14 11:11:42 -0400
Validate Report References On Promotion	true	ops.system	2016-04-14 11:11:42 -0400
Variable Security Enabled	true	ops.system	2016-04-14 11:11:42 -0400
Virtual Resource Security Enabled	true	ops.system	2016-04-14 11:11:42 -0400
Workflow Search Result Limit	200	ops.system	2016-04-14 11:11:42 -0400

Step 2 Double-click a property **Value** to change that value.


The following table describes the Universal Controller system properties:


Name (Property Name)	Description	Default
Administrator Email Address (opswise.admin.email_addr)	System administrator email address(es) specified as the recipient(s) for System Notifications . Addresses for multiple administrators should be specified in a comma-separated list.	(none)
Agent Cache Retention Period in Days (opswise.agent.cache.retention)	Number of days that cache files (stdout, stderr) are retained by the system.	7
Agent Heartbeat Interval in Seconds (opswise.agent.heartbeat.interval.in.seconds)	Number of seconds between each heartbeat message sent by the agent to the Controller.	120
Agent Prefix (opswise.agent.prefix)	Prefix appended to the Queue name for newly registered agents. A 4-digit number is appended to this prefix.	AGNT
Automatically Create Versions (opswise.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 (opswise.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 upstream tasks, where one or more of the upstream tasks would cause the task to be run and one or more would cause the task to be skipped.	false
Broadcast On Hold If Cluster Suspended (opswise.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 suspended .	true
Calendar Preview Period In Years (opswise.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 Calendar Preview .	2
Client Export Fetch Limit (opswise.export.client.fetch_limit)	Number of records to pre-fetch before performing an export to CSV, PDF, XLS (Excel), or XLSX . 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 (opswise.bundle.payload_compression)	Specification (true or false) for whether or not the Controller will compress record bundles during a promotion.	false
Confirm Exit (opswise.browser.confirm_exit)	Specification (true or false) for whether or not a confirmation pop-up displays if a user navigates away from the Universal Controller 6.1.x user interface (or closes the browser without logging out).	true
Confirm Update For Tasks In Workflows (opswise.task.confirm.workflow_update)	Specification (true or false) for whether or not a user, when updating a task , is prompted with a Confirmation dialog listing all Workflows containing that task, since those Workflows could be impacted by the task update.	false


<p>Continue Monitoring Completed Workflows in Workflow Monitor (opswise.workflow_monitor.monitor_completed)</p>	<p>Specification (true or false) for whether or not the Controller will continue monitoring completed Workflows in the Workflow Monitor.</p>	<p>false</p>
<p>Copy Notes to Task Instances for Reporting (opswise.notes.copy_to_execs)</p>	<p>Specification (true or false) for whether or not the Controller will copy task notes to task instances so that task notes can be included in activity reports or gauges. For example, if true is specified, you can create a gauge that lists task notes for failed task instances. This property should be enabled only as needed.</p>	<p>false</p>
<p>Create Version On Related List Change (opswise.version.on.related.list.change)</p>	<p>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 system will create a version of the task when the user changes a task variable.</p>	<p>true</p>

<p>Critical Path Calculations Permitted (opswise.cp.calculations.permitted)</p>	<p>Specification (true or false) for whether or not a user can use the Critical Path feature of the Controller.</p> <ul style="list-style-type: none"> • If this property is true: <ul style="list-style-type: none"> • The Toggle Critical Path View displays in the Workflow Monitor Toolbar. • The Calculate Critical Path field displays in the Workflow Details. • If this property is false: <ul style="list-style-type: none"> • The Toggle Critical Path View does not display in the Workflow Monitor Toolbar. • The Calculate Critical Path field does not display in the Workflow Details, either to view or modify. • If this property changes from false to true, logged-in users must log off/on to use the Critical Path feature. • If this property changes from true to false, the Critical Path feature will not be honored. However, Workflow Details will be preserved. <div data-bbox="803 793 1177 1764" style="background-color: #ffe6e6; padding: 10px; margin-top: 10px;"> <p> Important</p> <ul style="list-style-type: none"> • When restoring a Workflow Details Version, the Calculate Critical Path setting (enabled or disabled) will be preserved. • When promoting a Workflow record or importing (list or bulk) Workflow Details: <ul style="list-style-type: none"> • Critical Path Calculations Permitted setting will not change. • Calculate Critical Path, if enabled, will be disabled. • If the database is "dropped" for any reason: <ul style="list-style-type: none"> • Critical Path Calculations Permitted will be set to false. • Calculate Critical Path, if enabled, will be disabled. </div>	<p>false</p>
<p>Critical Path Color (opswise.cp.color)</p>	<p>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).</p>	<p>#FF0000 (red)</p>

<p>Critical Path Dynamic Calculation Threshold In Seconds (opswise.cp.calculations.dynamic.threshold_in_seconds)</p>	<p>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.</p>	<p>0</p>
<p>Critical Path Monitor Polling Interval In Seconds (opswise.cp.monitor.polling.interval_in_seconds)</p>	<p>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+.</p>	<p>300</p>
<p>Critical Path Monitor Polling Threshold In Seconds (opswise.cp.monitor.polling.threshold_in_seconds)</p>	<p>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+.</p>	<p>60</p>
<p>Data Backup/Purge Export Path (opswise.backup.path)</p>	<p>Export path to use instead of the default export path (opswise_backups under the Tomcat directory) for Data Backup/Purge operations.</p>	<p>(none)</p>
<p>Disable Tab Indicators (opswise.disable.tab.indicators)</p>	<p>Specification (true or false) for whether or not to disable the tab icons that indicate if tabs contain (green icon) or do not contain (gray icon) records.</p>	<p>false</p>
<p>Exclude Holidays for Business Days (opswise.calendar.exclude_holidays)</p>	<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"> • If true, holidays that fall on Business Days are considered non-Business Days. • If false (the default), holidays that fall on Business Days are considered Business Days. <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>	<p>false</p>
<p>Export Agent References (opswise.export.agent_references)</p>	<p>Specification (true or false) for whether or not the Controller will export referenced Agents when exporting definition XMLs with the Export References feature.</p>	<p>false</p>



Export Path (opswise.export.path)	Pathname where exported XML files are written. 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. <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> Note Any bulk import or list import 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 bulk export and list export 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 <tomcat>/opswise_export.</p> </div>	(none)
Expose UDM Script (opswise.infitran.expose_script)	<p>For debugging use only. Specification (true or false) for whether or not the Controller prepares a script 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 (opswise.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 Scripts script for each task instance run attempt that utilizes a script from the Scripts. This property only applies to Scripts defined with the Resolve UAC Variables 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 Scripts.</p>	false
Flatten Reference List Fields In Chart Reports (opswise.report.flatten_references)	Specification (true or false) for whether or not to flatten Business Services in Chart reports when grouping by Member of Business Services .	false
Forecast Period in Days (opswise.forecast.days)	Number of days to be included in a trigger forecast. See Displaying Trigger Forecast Information .	31
LDAP Synchronization Enabled (opswise.security.ldap.enabled)	Specification (true or false) for whether or not LDAP synchronization is enabled. This allows you to retain your LDAP Settings while using or not using LDAP authentication, as desired.	false
License Key (opswise.license)	License key for your installation; provided to you by your Universal Controller representative.	(none)
List Qualifying Times Format (opswise.trigger.date.format.display)	Format that you want the Controller to use when listing qualifying times for Time and Cron Triggers. See List Qualifying Times .	EEEEE, MMMMMMM dd, y HH:mm:ss z Z

Lock Account After Maximum Login Attempts (opswise.login.maximum_attempts.enabled)	<p>Specification (true or false) for whether or not to lock a user account if the user has reached the maximum number of successive login attempts that is allowed, as specified by the Maximum Login Attempts property.</p> <p>Whenever this property is enabled (value is changed from false to true), the current number of failed login attempts for all users is reset to 0.</p>	false
Log File Retention Period in Days (opswise.log.retention)	Number of days that the Controller retains its log files.	5
Log Level (opswise.log.level)	<p>Level of logging for the Controller:</p> <ul style="list-style-type: none"> • ALL • TRACE • DEBUG • INFO • WARN • ERROR • SEVERE • OFF 	INFO
Maximum Login Attempts (opswise.login.maximum_attempts)	Maximum number of successive login attempts that a user can make before the user's account is locked if the Lock Account After Maximum Login Attempts property is set to true .	5
Maximum Nested Variable Depth (opswise.variable.maximum_depth)	Maximum number of nested variables allowed.	25
Maximum Processing Threads (opswise.threads.max)	Maximum number of processing threads used.	1000
Maximum Timer Threads (opswise.timer.threads.max)	Maximum number of timer threads used.	300
Node Time Display (opswise.node_time.display.default)	Specification (Yes or No) for whether or not the User Task Bar will display the Cluster Node time by default.	Yes
Node Time Display Background Color (opswise.node_time.display.background_color.default)	Default color to use for the Cluster Node time field background in the User Task Bar .	White
Node Time Display Color (opswise.node_time.display.color.default)	Default color to use for the Cluster Node time field in the User Task Bar .	Black
Node Time Display Time Zone (opswise.node_time.display.tz.default)	Specification for whether to display the time zone of the Server or the User in the Cluster Node time field in the User Task Bar .	Server
Password Expiration Enabled (opswise.login.password_expiration.enabled)	<p>Specification (true or false) for whether or not user passwords will expire after the maximum number of days that a user password can remain unchanged before expiring, as specified by the Password Expiration in Days property.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note Password expiration is not applicable to LDAP authenticated users.</p> </div>	false
Password Expiration in Days (opswise.login.password_expiration)	Maximum number of days that a user password can remain unchanged before expiring, if the Password Expiration Enabled property value is true .	30

Perform Actions On Defined For Tasks Within Skipped Workflow (opswise.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 Defined status and evaluate their own run criteria.	false
Perform Actions On Halt (opswise.perform_actions.on_halt)	Specification (true or false) for whether or not to allow the triggering of notifications for a task instance status change when issuing a Force Finish (Halt) or Force Finish/Cancel (Halt) command.	true
Platform Log Level (opswise.platform.log.level)	Level of logging for the user interface framework: <ul style="list-style-type: none"> • ALL • TRACE • DEBUG • INFO • WARN • ERROR • OFF 	WARN
Promotion Read Permission Required (opswise.promotion.read_permission.required)	Specification (true or false) for whether or not the ops_promotion_admin role requires the Read operation in the Permissions for any record type being promoted.	false
Promotion Schedule Retention Period In Days (opswise.promotion_schedule.retention)	Number of days that a Promotion Schedule will remain available after the promotion has completed successfully.	7
Promotion Strict Mode (opswise.promotion.strict_mode)	Specification for whether or not to fail a promotion if an item being promoted matches a target item with both the same name / different sysid and a different name / same sysid. Valid values are 0 (allow) and 1 (fail). <div style="border: 1px solid black; background-color: #ffffcc; padding: 5px; margin-top: 10px;"> <p> Note Regardless of the property configuration, the Controller will log any detected mismatches, including same name / different sysid or different name / same sysid.</p> </div>	1
Purge Activity By Primary Key (opswise.backup.purge_by_primary_key)	Specification (true or false) for whether or not to use the new Activity purge strategy. (It is recommended that you do not change the value of this property unless requested to do so by Technical Support.)	true
Purge Activity By Primary Key Limit (opswise.backup.purge_by_primary_key.limit)	Number of task instances to purge per transaction while performing the Activity purge by primary key.	500
Retrieve Output Default Maximum Lines (opswise.retrieve_output.maximum_lines)	Specifies the default value for the Number of Lines field on the Retrieve Output dialog. Additionally, if the Number of Lines field is blank, it specifies the limit for the number of lines retrieved when Automatic Output Retrieval is enabled on a task.	100
Scheduled Report 3D Pie Chart (opswise.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 (opswise.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 (opswise.report.scheduled.image_height.default)	Specification for the height (in pixels) of PNG chart report images.	500
Scheduled Report Image Width (opswise.report.scheduled.image_width.default)	Specification for the height (in pixels) of PNG chart report images.	750
Scheduled Report Inline Image (opswise.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 (opswise.report.scheduled.pdf.orientation.default)	Specification (Landscape or Portrait) for the page layout of the PDF.	Landscape
Scheduled Report PDF Size (opswise.report.scheduled.pdf.size.default)	Specification (Letter, Legal, or A4) for the page size of the PDF.	Letter
SMTP Debug (opswise.smtp.debug)	Specification (true or false) for whether or not additional debug information about any Email Connection issues (for example, Email Connection Test fails or errors while sending emails) will be included in the log.	false
Start Server Paused (opswise.startup.paused)	Specification (true or false) for whether or not the start server process brings up the server in paused mode.	false
Stop Unknown Application Monitors (opswise.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
System Default Activity Quick Filters (opswise.activity.quick_filters.default)	Task instance status types to include in the Active, Blocked, Completed, and Problem Quick Filters . 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=35,81,99,110,120
System Default CLI Bulk Import Path (opswise.bulk_import.path.default)	Pathname from where imported XML files are written.	<tomcat-home>/opswise or <tomcat-home>\opswise (<tomcat-home> is the ba installation directory.)
System Default Command Line Access (opswise.user.command_line.default)	Specification (Yes or No) for all users whose Command Line access field in their User Details is set to -- System Default -- , 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 (opswise.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.	Yes
System Default Confirm Task Instance Commands (opswise.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 (opswise.version.maximum.default)	Maximum number of version records (1 to 255) to maintain per definition.	100
System Default Report Group Threshold (opswise.report.group_threshold.default)	Maximum number of groups to display on a Chart report . All groups above the threshold will be displayed in one group named Other.	10

System Default Trigger Simulate (opswise.trigger.simulation)	<p>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.</p> <p>You can still force a trigger by using the Trigger Now command or launch a task by using the Launch command.</p>	false
System Default Update Virtual Resource Limit On Promotion (opswise.promotion.virtual_resource.update_limit.default)	<p>Specification (Yes or No) for whether or not virtual resource limits are updated as part of a promotion.</p>	Yes
System Default Wait/Delay Workflow Only (opswise.timewait.workflow.only.default)	<p>Specification (Yes or No) for whether or not to apply Wait/Delay Options to a task only if it runs within a workflow.</p>	Yes
System Default Web Browser Access (opswise.user.browser.default)	<p>Specification (Yes or No), for all users whose Web Browser access field in their User Details is set to -- System Default --, for whether or not to control a user's ability to access the Controller through the user interface.</p>	Yes
System Default Web Service Access (opswise.user.web_service.default)	<p>Specification (Yes or No), for all users whose Web Service access field in their User Details is set to -- System Default --, for whether or not to control a user's ability to access the Controller through the RESTful Web Services API.</p>	Yes
System Identifier (opswise.system_identifier)	<p>User-selected name displayed in the System Identifier field on the User Task Bar.</p>	(none)
System Identifier Background Color (opswise.system_identifier.background_color)	<p>Background color for the System Identifier field on the User Task Bar.</p>	black
System Identifier Color (opswise.system_identifier.color)	<p>Text color for the System Identifier field on the User Task Bar.</p>	white

<p>Track Counts For Unlimited Execution Limit (opswise.execution_limit.unlimited.counts)</p>	<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 Unlimited.</p> <p>The following restrictions apply to this property:</p> <ul style="list-style-type: none"> • If you change this property, all UI behavior based on this property will require logging out/logging in to take effect. • You cannot change this property from false to true while there are one or more task instances running against an Agent and/or Agent Cluster. • If you change this property from false to true, all Agents and Agent Clusters will begin tracking task counts. • If you change this property true to false, all Agents and Agent Clusters that are not Limited will have their Current Count column set to 0. • If this property is false, and an Agent or Agent Cluster is Unlimited, the Current Count column will display as blank in the list and will be hidden in the Agent / Agent Cluster Details. • If this property is true, and an Agent or Agent Cluster is Unlimited, the Current Count column will display the current count and the current count will be visible in the Agent / Agent Cluster Details. • If this property is false, and you change an Agent / Agent Cluster from Limited to Unlimited, the current count will be reset back to 0. • If this property is true or false, and you change an Agent / Agent Cluster from Unlimited to Limited, the current count will be reset back to 0. <div data-bbox="878 1199 1175 1430" style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> Note</p> <p>For optimal performance, we recommend you leave this property set to false.</p> </div>	<p>false</p>
<p>Use Checksum Validation (opswise.use.checksums)</p>	<p>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.</p>	<p>false</p>
<p>Validate Report References On Promotion (opswise.promotion.report.validate_references)</p>	<p>Specification (true or false) for whether or not to implement report-related promotion validation.</p> <div data-bbox="802 1688 1175 1866" style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> Note</p> <p>This property applies to the target system to which a promotion payload is being promoted.</p> </div>	<p>true</p>
<p>Variable Security Enabled (opswise.security.variable.enabled)</p>	<p>Specification (true or false) for enabling enhanced Global Variable security.</p>	<p>true</p>

Virtual Resource Security Enabled (opswise.security.virtual_resource.enabled)	Specification (true or false) for enabling enhanced Virtual Resource security.	true
Workflow Search Result Limit (opswise.workflow.search_result_limit)	Results limit when querying for task records from the Task Find or Open Workflow pop-up.	200

Overriding Universal Controller System Properties

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

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

When the restarted Controller reads the `opswise.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.

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.

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

LDAP Settings

- Overview
- Credentials for Running Tasks Authentication
- User Login Authentication
- LDAP Settings Field Descriptions
- Mappings Tab
 - Mappings Tab Column Descriptions
 - Mapping Details
- Best Practices
 - Determining your User OUs and Group OUs
 - Customizing Users and Groups Lists to see DN of LDAP Synchronized Users and Groups
 - LDAP Server Operations
 - LDAP Settings Fields
- SSL Secured LDAP (LDAPS)

Overview

 **Note**
 The information provided on this page assume 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 Automation Center to use LDAP authentication for:

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

Credentials for Running Tasks Authentication

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

UNIX	<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 Security of Universal Agent Components 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>
Windows	<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>

User Login Authentication

Step 1 From the Administration navigation pane, select **Configuration > LDAP Settings**. The LDAP Settings page displays.

Step 2 Enter / select your LDAP Settings, using the field descriptions below as a guide.

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

Step 3 Click the **Update** button.

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**.

LDAP Settings Field Descriptions

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

Field Name	Description
Connection	This section contains information on the LDAP connection.

URL	<p>URL of the LDAP connection. For example:</p> <ul style="list-style-type: none"> • <code>ldap://ldap.stonebranch.com:389/</code> • <code>ldaps://192.202.185.90:636/</code> <p>To use SSL encryption (<code>ldaps://</code>), you will have to configure Universal Automation Center with an X.509 CA certificate in either of these formats:</p> <ul style="list-style-type: none"> • DER-encoded binary • Base64-encoded
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.
Search	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 User ID.</p> <p>Options:</p> <ul style="list-style-type: none"> • <code>sAMAccountName</code> • <code>cn</code> • <code>uid</code> • Other...
User Filter	<p>Search filter for users.</p> <p>If you do not specify a User Filter, the server uses <code>(&(objectClass=user)(objectCategory=person))</code>.</p>
User Target OU List	<p>Single- or multi-level target OU's (Organizational Units) within the Base DN 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 Base DN 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>(&(objectClass=group)(objectCategory=group))</code>.</p>
Group Target OU List	<p>Single- or multi-level target OU's within the Base DN 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 Base DN will be searched.</p>
Advanced	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 Member Attribute	LDAP attribute for the groups in which a user is a member. If you do not specify a User Member Attribute, the LDAP server uses memberOf .
Group Member Attribute	LDAP attribute for the members of a group. If you do not specify a Group Member Attribute, the LDAP server uses member .
Buttons	This section identifies the buttons displayed above and below the LDAP Settings that let you perform various actions.
Update	Saves updates to the record.
Test Connection	After saving the LDAP Settings to the database, click Test Connection to run a connection test.

Refresh	Refreshes any dynamic data displayed in the LDAP Settings.
Tabs	This section identifies the tabs across the top of the LDAP Settings page that provide access to additional information about the LDAP Settings.
Mappings	List of User and Group columns mapped to LDAP attributes that enables you to customize how the User/Group records get populated from LDAP.

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	Description	description	ops.system	2014-09-25 20:00:00 -0400

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.

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	Update Refresh Close
Details	
Type :	User
Column :	Manager
Attribute :	manager
Update Refresh Close	

Best Practices

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

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

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:

Source Column for a User	ldap:CN=Stonebranch User,OU=TestUsers,DC=qad,DC=stone,DC=branch
Source Column for a Group	ldap:CN=OpwiseParent,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](#).

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 server operation.

LDAP Settings Fields

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

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.

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:	OU=CorporateUsers,OU=Corporate,DC=stonebranch,DC=com
And your Groups are in:	OU=CorporateGroups,OU=Corporate,DC=stonebranch,DC=com
Your Base DN can be:	OU=Corporate,DC=stonebranch,DC=com

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 query will match any object (**objectClass=***). However, this is very unlikely to be the desired configuration.

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

For example:

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

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

```
(&(objectClass=user)(objectCategory=person)(memberOf=CN=OpswiseGroup,OU=CorporateGroups,OU=Corporate,DC=stor
```

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

For example:

- **OpswiseGroupA** is a member of **OpswiseGroup**.
- **OpswiseGroupB** is a member of **OpswiseGroupA**.
- **OpswiseGroupC** is a member of **OpswiseGroupB**.

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=OpswiseGroup,OU=CorporateGr
```

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)).

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 query will match any object (**objectClass=group**).

For Active Directory (AD)	It is recommended that you optimize the query performance by incorporating the indexed objectCategory attribute: <pre>(&(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=OpswiseGroup,OU=CorporateGroups,OU=Corporate,DC=stonebranch,DC=com**, modify the recommended minimum group search filter:

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

To synchronize only **OpswiseGroupA**, **OpswiseGroupB**, and **OpswiseGroupC**, use the following filter:

```
(&(objectClass=group)(objectCategory=group)(|(cn=OpswiseGroupA)(cn=OpswiseGroupB)(cn=OpswiseGroupC)))
```

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

```
(&(objectClass=group)(objectCategory=group)(|(cn=OpswiseGroup)(memberOf=CN=OpswiseGroup,OU=CorporateGroups,C
```

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

```
(&(objectClass=group)(objectCategory=group)(|(cn=OpswiseGroup)(memberOf:1.2.840.113556.1.4.1941:=CN=OpswiseGroup,OU=CorporateGro
```

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 Universal Controller Start-up Properties file (<code>opswise.properties</code>) contains the following property configuration: opswise.ldap.groups.filter_indirect=true (If opswise.ldap.groups.filter_indirect=true , any Groups synchronized indirectly - that is, through a User's memberOf attribute - will honor the Group Filter and Group Target OU List.)



Note

The `opswise.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.

SSL 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](#) (`opswise.properties`) file:

- `opswise.trustmanager.truststore`
- `opswise.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](#).

Data Backup - Purge

- Overview
- Purge Rules for Task Instances
- Creating a Data Backup / Purge Record
 - Data Backup / Purge Details
 - Data Backup / Purge Details Field Descriptions
- Running a Data Backup / Purge Manually
- Importing Backed Up / Purged Data into the Controller
- Returning Virtual Resources for Purged Task Instances in Failure Status

Overview

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

- Audit records
- 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](#).

Purge Rules for Task Instances

The following rules apply for the purging of task instances:

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

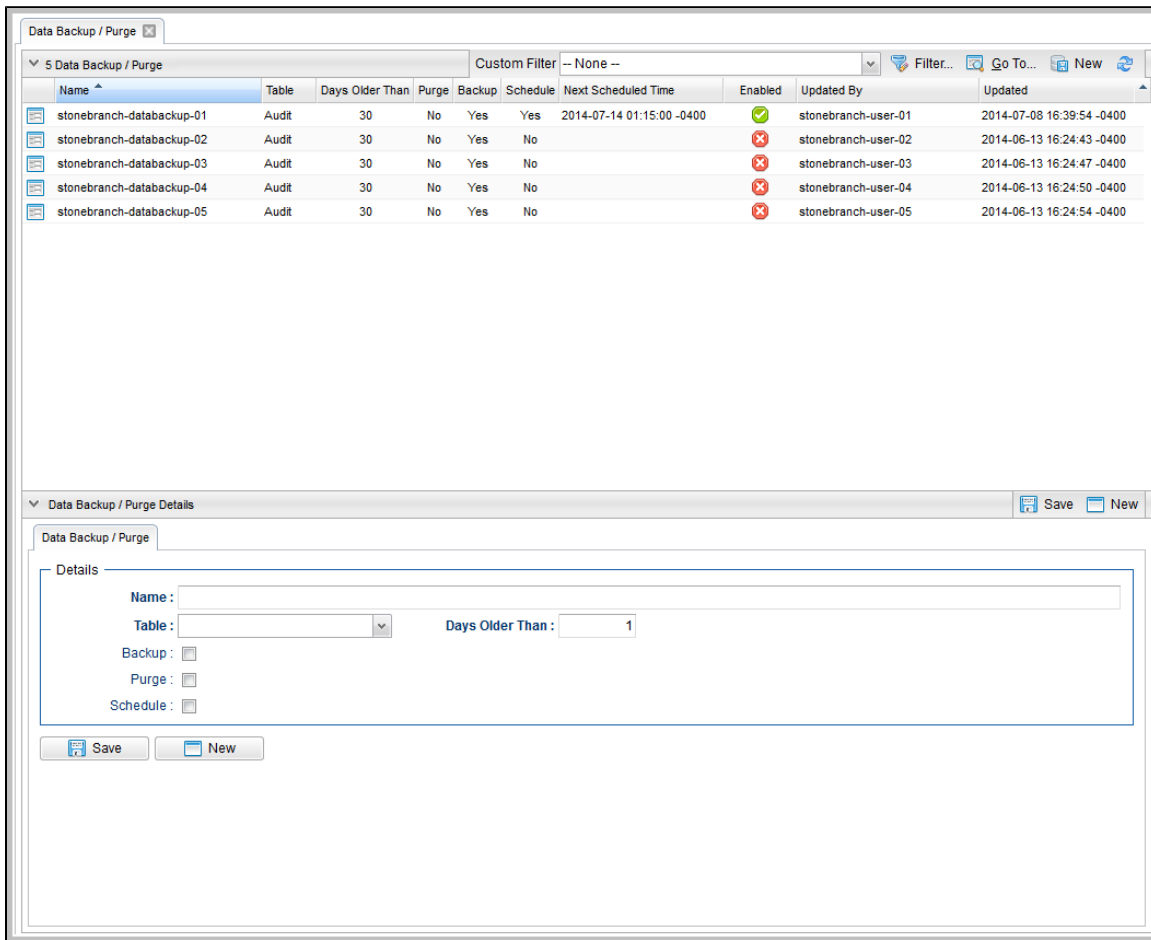
- 110 (In Doubt)
- 120 (Start Failure)
- 125 (Confirmation Required)
- 130 (Cancelled)
- 140 (Failed)
- 180 (Skipped)
- 190 (Finished)
- 200 (Success)

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.

Creating a Data Backup / Purge Record

Step 1 From the **Administration** navigation pane, select **Configuration > Data Backup / Purge**. The Data Backup / Purge list displays. Below the list, Details for a new Data Backup / Purge record displays.



Step 2 Enter / select Details for a new Data Backup / Purge record, using the [field descriptions](#) below as a guide.

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

To display more of the Details fields on the screen, you can either:

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

Step 3 If you want the backup / purge to run automatically, enable the **Schedule** field and specify how often and what time it should run. Otherwise, you can run it manually.

Step 4 Click the **Save** button. The record is added to the database, and all buttons and tabs in the Data Backup / Purge Details are enabled.



Note

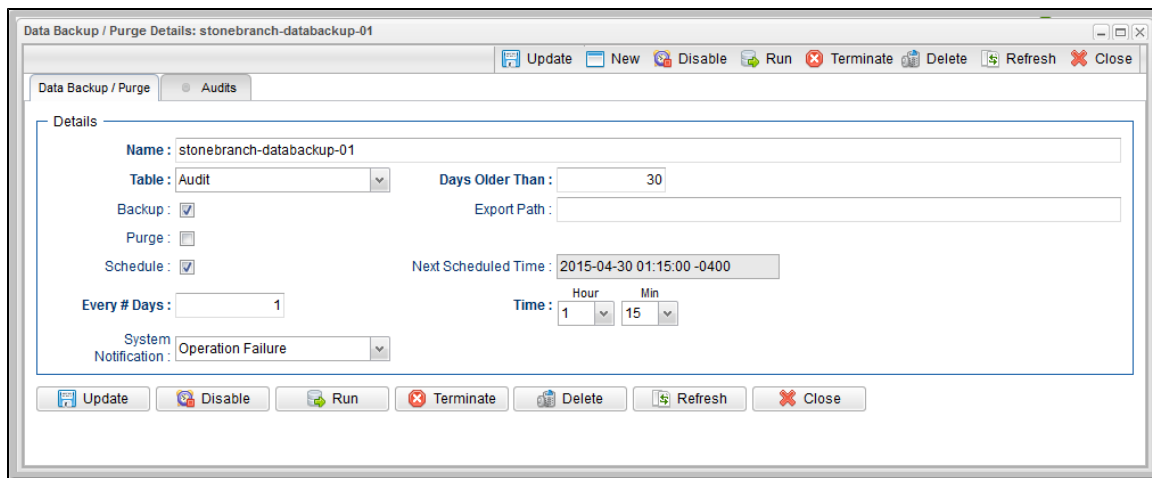
To **open** an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **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](#)). |

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.





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](#).

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
Details	This section contains detailed information about the record.
Name	Name of this backup specification.
Table	Specifies which records you want to back up and/or purge: <ul style="list-style-type: none"> • Audit • Activity • History
Purge	If enabled, the process will purge the selected data from your Universal Controller database.

Backup	<p>If enabled, the process will write all the selected data to XML files.</p>
Days Older Than	<p>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.</p>
Export Path	<p>If Backup 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;"> <pre>Audit: ops_audit_Sat_Apr_30_08_30_00_PDT_2011.xml Activity: 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 History: ops_history_Sat_Apr_30_08_30_00_PDT_2011.xml</pre> </div> <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> Note If no path is specified, the system default path (opswise_backups under the Tomcat directory) is used, unless an alternate path is specified in the Universal Controller system property Data Backup/Purge Export Path. 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>
Schedule	<p>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.</p>
Every # Days	<p>If Schedule is enabled, specifies the frequency (in number of days) of the backup / purge process. Default is 1.</p>
Time	<p>If Schedule is enabled, specifies the time of the backup / purge. Use 24:00 hour time.</p>
Next Scheduled Time	<p>Displays the next scheduled time the backup / purge process will run, based on the specifications in your schedule.</p>
System Notification	<p>Specification for whether or not to receive system notifications for Data Backup / Purge operations.</p> <p>Options are:</p> <ul style="list-style-type: none"> • --None -- • Operation Failure • Operation Success/Failure • Operation Success <div style="background-color: #ffffcc; padding: 10px; margin: 10px 0;"> <p> Note In order to receive system notifications, you must provide an email address in the Administrator Email Address system property and select the Use for System Notifications field on an Email Connection.</p> </div>
Buttons	<p>This section identifies the buttons displayed above and below the Data Backup / Purge Details that let you perform various actions.</p>

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

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.

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](#).

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.

Server Operations

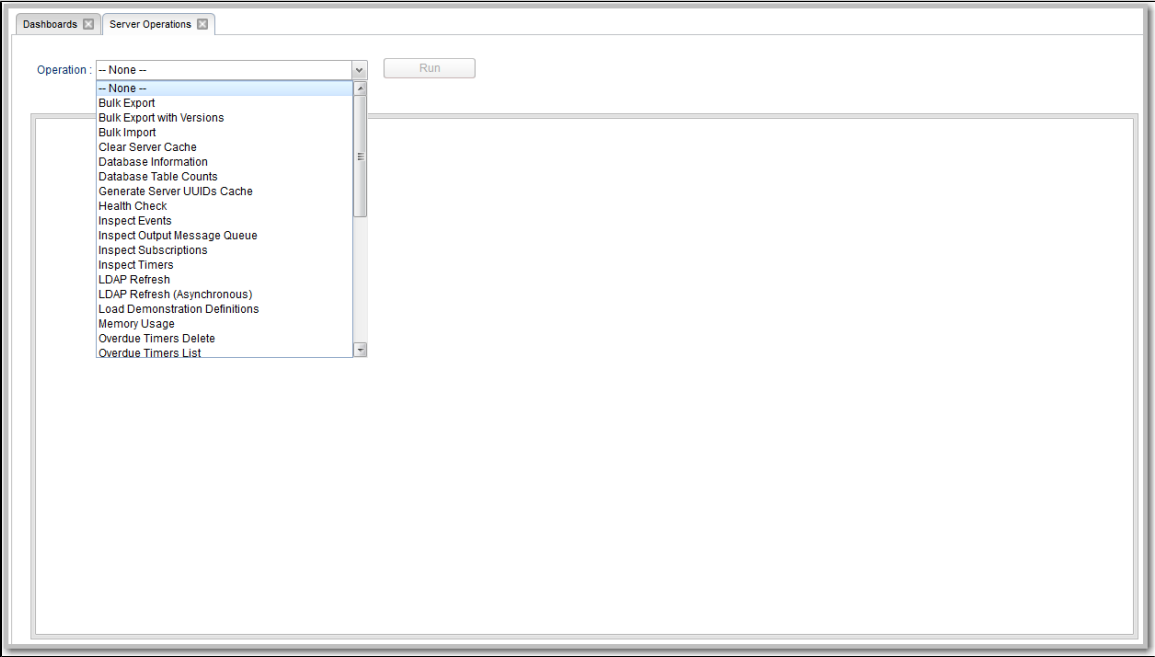
- Overview
- Running a Server Operation
- Server Operation Completion
- Server Operation Timeout
- Server Operations Descriptions
- Universal Controller Database Tables

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.

Running a Server Operation

Step 1 From the Administration navigation pane, select **Configuration > Server Operations**. The Server Operations list displays.



The screenshot shows a web interface with a tab labeled 'Server Operations'. On the left, there is a drop-down menu titled 'Operation:' with a list of operations including Bulk Export, Bulk Import, Health Check, and others. A 'Run' button is located to the right of the drop-down menu.

Step 2 Select an operation from the drop-down list and click **Run**.

Server Operation Completion

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

For example:

```
2015-03-31-09:24:58:957 -0400 INFO [http-8080-exec-4] Running Server Operation: Bulk Export
```

```
2015-03-31-09:25:12:357 -0400 INFO [http-8080-exec-4] Server Operation completed: Bulk Export in 1
Minute 37 Seconds
```

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 [Universal Automation Center 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, **opwise.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.

```
2015-03-31-09:24:58:957 -0400 INFO [http-bio-8080-exec-4] Running Server Operation: Bulk Import
...
2015-03-31-09:25:12:357 -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.

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 updated software (see Upgrading Universal Controller).
Bulk Export with Versions	Exports all current records along with older (non-current) versions of record definitions when migrating data to updated software (see Upgrading Universal Controller).
Bulk Import	Imports all data from an exported file when migrating data to updated software (see Upgrading Universal Controller).
Clear Server Cache	Clears the internal server cache. You can use this operation if you are experiencing unexpected behavior in the Universal Controller system. For example, Technical Support may ask you to first run this operation to clear the server cache, then clear your browser cache.
Database Table Counts	Displays the following information for Universal Controller database tables: <ul style="list-style-type: none"> • Largest table • Number of tables • Number of rows • Number of rows in each table See Universal Controller Database Tables , below, for a description of all tables.
Generate Server UUIDs Cache	For use only by Technical Support personnel or when you are requested to run it by Technical Support.

Health Check	<p>Displays information about the current instance of the Controller.</p> <pre> Nodes: <u>Connected Node: opswise</u> Mode: Active Uptime: 1 Day 1 Hour 13 Minutes 37 Seconds hostname: opswise ip: 192.168.00.00 started: 2014-04-22 12:28:25 -0400 hb: 2014-04-23 17:41:58 release: 1 build: build.159 build date: 04-22-2014_1014 Using 3.38% of memory. In Use: 66.84 MB Allocated: 989.94 MB. Free: 1912.91 MB. Max Heap: jdbc:mysql://qa-dfdb2.stone branch/:root:: In Use: 0, Total: 2 Event Processors: HeartBeat - Queue Size: 0 Guid Lock Information: NO GUID LOCKS. Database Connection Pool: Active: 0 Idle: 2 </pre>
Inspect Events	For use only by Technical Support personnel or when you are requested to run it by Technical Support.
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 system operation forces a refresh writes all log entries to the user interface as well as to the log, and prevents all other user activity while the running. If you estimate the refresh could take a considerable amount of time, we recommend you use LD, (Asynchronous) .
LDAP Refresh (Asynchronous)	If LDAP is configured for this installation, it refreshes every 24 hours. This system operation forces a refresh is performed in the background and sends log entries to the Controller log.
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 Overdue Timers List operation.
Overdue Timers List	Lists any timers that are overdue (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 this operation, the event or task will complete. The Controller remains in a paused state until you run the Cluster Node operation.

Purge History	<p>Purges all records from the History table (ops_history).</p> <p>Any time a task instance goes into an end status (Cancelled, Failed, Skipped, Finished, Success), a copy of the record is added to the History table. You can view your History table by selecting Automation Center > Task Instances > History in the navigation pane.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> Note 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 Data Backup/Purge for this purpose by selecting Administration > Data Backup/Purge 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 All Task Instances table (ops_exec), which contains all system activity, including records in any status (including end statuses). Records in the All Task Instances table (ops_exec) remain there until they are manually purged.</p> <div style="background-color: #ffe6e6; padding: 10px; border: 1px solid #ccc;"> <p> Warning 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 System Default Maximum Versions 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 Resetting the Current Task Counts).
Reset All Agent Task Counts	Resets the current number of tasks currently being run by all Agents to 0 (see Resetting the Current Task Counts).
Restart Cluster Node	Stops and restarts the Controller within the running Tomcat server. The Controller is effectively shut down without stopping and starting Tomcat.
Restore System Default List Layouts	Restores all lists to their default layouts.
Resume Cluster Node	Resumes the Controller after it has been paused using the Pause Cluster Node operation.
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 unused objects in order to make the memory they currently occupy available for quick re-use. When controlling the method call, the Java Virtual Machine has made a best effort to reclaim space from all discarded objects.
Server Information	<p>Displays the following categories of information about the Universal Controller server:</p> <ul style="list-style-type: none"> • Node • License • Server Deployment • Database Information • Memory Information
System Properties	<p>Displays all properties of the operating system on which the Controller is running.</p> <p>You may be asked to run this server operation by Technical Support.</p>
Temporary Property Change	Allows for the temporary setting of specific Universal Controller properties to be used for diagnosing problem operation and setting of properties should be performed only under the guidance of Stonebranch support.
Thread List	<p>Captures information about internal Controller system processes.</p> <p>You may be asked to run this server operation by Technical Support.</p>

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.

Universal Controller Database Tables

The following table identifies and describes all Universal Controller database tables, which are listed if you run the [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 [Reports](#).

Table	Table Name	Description
Abort Actions	ops_abort_action	Contains details about Abort actions .
Abort Actions Versions	ops_abort_action_v	Contains details about previous versions of Abort actions . New versions of Abort Action records are created when a task record is updated.
All Agents	ops_agent	Displays a list of Agents .
All Agent Clusters	ops_agent_cluster	Contains details about Agent Clusters .
All Agent Clusters Versions	ops_agent_cluster_v	Contains details about previous versions of Agent Clusters .
All Agents Mapping	ops_agent_mapping	Shows all the agents connected to one or more Promotion Targets (as retrieved using the Refresh Target Agents button).
Linux/Unix Agents Mapping	ops_agent_mapping_unix	Shows the mapping specifications between local Linux/Unix agents and Linux/Unix agents on a Promotion Target (as retrieved using the Refresh Target Agents button).
Windows Agents Mapping	ops_agent_mapping_windows	Shows the mapping specifications between local Windows agents and Windows agents on a Promotion Target (as retrieved using the Refresh Target Agents button).
z/OS Agents Mapping	ops_agent_mapping_zos	Shows the mapping specifications between local z/OS agents and z/OS agents on a Promotion Target (as retrieved using the Refresh Target Agents button).
Applications	ops_application	Shows a list of Application Resources .
Applications Versions	ops_application_v	Contains details about previous versions of Application resources .
Audits	ops_audit	Contains details of events being written to the Audit history .
Backups	ops_backup	Contains Backup and Purge records.
Bundles	ops_bundle	Contains all Bundles records.
Bundles and Agent Clusters	ops_bundle_agent_cluster_join	Shows relationship information between Bundles and Agent Clusters ; that is, which agent clusters belong to which bundles.
Bundles and Applications	ops_bundle_application_join	Shows relationship information between Bundles and Application resources ; that is, which Application resources belong to which bundles.
Bundles and Calendars	ops_bundle_calendar_join	Contains relationship information between Bundles and Calendars ; that is, which Calendars belong to which Bundles .
Bundles and Credentials	ops_bundle_credentials_join	Contains relationship information between Bundles and Credentials ; that is, which Credential records belong to which bundles.
Bundles and Custom Days	ops_bundle_custom_day_join	Contains relationship information between Custom Days and Bundles ; that is, which Custom Days belong to which Bundles .
Bundles and Database Connections	ops_bundle_db_cntrn_join	Contains information about the relationship between Bundles and Database Connections ; that is, which Database Connections belong to which Bundles .

Bundles and Email Connections	ops_bundle_email_cntn_join	Contains information about the relationship between Bundles and Email Connections ; that is, which Email Connections belong to which Bundles.
Bundles and Email Templates	ops_bundle_email_tmplt_join	Contains relationship information between Bundles and Email templates ; that is, which Email Templates belong to which Bundles.
Bundles and Business Services	ops_bundle_generic_group_join	Contains relationship information between Bundles and Business Services ; that is, which Business Services belong to which Bundles.
Bundles and Virtual Resources	ops_bundle_resource_join	Contains relationship information between Bundles and Virtual Resources ; that is, which Virtual Resources belong to which Bundles.
Bundles and SAP Connections	ops_bundle_sap_cntn_join	Contains relationship information between Bundles and SAP Connection ; that is, which SAP Connection records are in which Bundles.
Bundles and Scripts	ops_bundle_script_join	Contains relationship information between Bundles and Script ; that is, which Scripts belong to which Bundles.
Bundles and SNMP Managers	ops_bundle_snmp_cntn_join	Contains relationship information between Bundles and SNMP Manager ; that is, which SNMP Managers belong to which Bundles.
Promotion Targets	ops_bundle_target	Contains details about Promotion Target records.
Bundles and Tasks	ops_bundle_task_join	Contains relationship information between Bundles and Tasks ; that is, which Tasks are in which Bundles.
Bundles and Triggers	ops_bundle_trigger_join	Contains relationship information between Bundles and Triggers ; that is, which Triggers are in which Bundles.
Bundles and Variables	ops_bundle_variable_join	Contains relationship information between Bundles and Global variables ; that is, which Global variables belong to which Bundles.
Calendar Custom Days	ops_cal_cust_join	Contains details about which Custom Days are associated with which Calendar records .
Calendar Custom Days Versions	ops_cal_cust_join_v	Contains previous versions of the association between Custom Days and Calendar records .
Calendars	ops_calendar	Contains details about Calendar records .
Calendars Versions	ops_calendar_v	Contains previous versions of Calendar records .
Chart Colors	ops_chart_color	Contains details about colors used in Chart reports .
Cluster Lock	ops_cluster_lock	(For internal use only.)
Cluster Nodes	ops_cluster_node	Provides details about cluster nodes .
Cluster Nodes Notifications	ops_cluster_notification	Contains Email and SNMP notification records associated with the cluster node .
Command	ops_command	(For internal use only.)
Command Response	ops_command_response	(For internal use only.)
Properties	ops_config	Contains Universal Controller System Properties .
Connector Notifications	ops_connector_notification	Contains Email Notification and SNMP Notification data associated with Agents and OMS Servers .
Counter	ops_count	(For internal use only.)
Credentials	ops_credentials	Login credentials used by the Controller to access remote machines.
Credentials Versions	ops_credentials_v	Contains previous versions of Credentials records.
Custom Days	ops_custom_day	Contains details about defined Custom Days .
Custom Days Versions	ops_custom_day_v	Contains previous versions of Custom Days records.
Dashboards	ops_dashboard	Contains details about Dashboards .
Dashboards Portlets	ops_dashboard_portlet	Contains details about the content (Widgets) on the Dashboards .
Database Connections	ops_database_connection	Contains details about [Database Connections defined in the Controller database.

Database Connections Versions	ops_database_connection_v	Contains previous versions of [Database Connections records.
Email Notifications	ops_email_cluster_notification	Contains Email Notification records associated with Cluster Nodes .
Email Notifications	ops_email_conn_notification	Contains Email Notification-specific data associated with Agents and OMS Servers .
Email Connections	ops_email_connection	Contains details about Email Connections resources.
Email Connections Versions	ops_email_connection_v	Contains previous versions of Email Connections records.
Email Notifications	ops_email_notification	Contains details about Email Notifications associated with tasks .
Email Notifications Versions	ops_email_notification_v	Contains previous versions of Email Notifications associated with tasks . Note that a new version is created only when the task is updated.
Email Templates	ops_email_template	Contains details about Email templates .
Email Templates Versions	ops_email_template_v	Contains previous versions of Email template 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.)
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_rstr_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 mutually exclusively .
All Task Instances	ops_exec	Task instance activity (running tasks).
Application Control Task Instances	ops_exec_application_control	Contains details about Application Control task instances.

Email Task Instances	ops_exec_email	Contains details about Email task instances .
File Monitor Instances	ops_exec_file_monitor	Contains details about File Monitor task instances .
File Transfer Task Instances	ops_exec_ftp	Contains details about File Transfer task instances .
FTP File Monitor Instances	ops_exec_ftp_file_monitor	Contains details about FTP File Monitor task instances .
Universal Command Task Instances	ops_exec_indesca	Contains details about Universal Command task instances .
Manual Task Instances	ops_exec_manual	Contains details about Manual task instances .
Task Monitor Instances	ops_exec_monitor	Contains details about Task Monitor task instances .
Output	ops_exec_output	Contains any output (such as STDOUT) attached to task instances.
Task Instances Run Criteria	ops_exec_run_criteria	Contains run criteria information for task instances within a Workflow .
SAP Task Instances	ops_exec_sap	Contains SAP task instance records.
Timer Task Instances	ops_exec_sleep	Contains details about Timer task instances .
SQL Task Instances	ops_exec_sql	Contains details about SQL task instances .
Stored Procedure Task Instances	ops_exec_stored_proc	Contains details about Stored Procedure task instances .
Stored Procedure Task Parameters	ops_exec_stored_proc_param	Contains Parameter records associated with Stored Procedure task instances .
System Monitor Task Instances	ops_exec_system_monitor	Contains System Monitor task instance records.
Task Instance Virtual Resources	ops_exec_to_resource	Contains relationship information between Virtual Resources and task instances; that is, which task instances are assigned to which Virtual Resources .
Linux/Unix Task Instances	ops_exec_unix	Contains details about Linux/Unix task instances .
Windows Task Instances	ops_exec_windows	Contains details about Windows task instances .
Workflow Task Instances	ops_exec_workflow	Contains details about Workflow task instances .
Workflow Task Instance Dependencies	ops_exec_workflow_edge	Contains information about the conditions specified between task instances within workflows .
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 workflows .
z/OS Task Instances	ops_exec_zos	Contains details about z/OS task instances .
Restart Confirmations	ops_exec_zos_confirm	Contains details about any restart confirmations performed on z/OS tasks .
Job Step Files Data	ops_exec_zos_files	Contains details about jobsteps in a z/OS task .
Restartable Job Steps	ops_exec_zos_jobsteps	Contains historical details about restartable job steps in a z/OS task .
Restartable Job Steps	ops_exec_zos_jobstepsui	Contains details about restartable job steps in a z/OS task .
Restart Criteria	ops_exec_zos_rstrt_criteria	Contain information about z/OS task restart criteria .
Step Conditions	ops_exec_zos_stepcond	Contains details about z/OS task instance step conditions .
Externalizable	ops_externalizable	Contains an internal table for events.
Business Services	ops_generic_group	Contains details about Business Services .
Business Services Versions	ops_generic_group_v	Contains previous versions of Business Service records.
Group Roles	ops_group_has_role	Contains relationship information between Universal Controller User Groups and Roles ; that is, which Groups have been assigned which Roles .

History	ops_history	Contains a history of task activity.
LDAP	ops_ldap	Identifies where LDAP Settings are stored.
Licenses	ops_license	Contains information about the Controller license.
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 list layouts.
Local Variables	ops_local_variable	Contains details about task and trigger variables (also called local variables), entered into the Variables tab on a task or trigger record.
Local Variables Versions	ops_local_variable_v	Contains previous versions 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.)
Notes	ops_note	Contains details about Notes attached to Controller records.
Notes Versions	ops_note_v	Contains previous versions of Notes records.
All Actions	ops_notification	Contains details about all task actions: Abort Action, Email Notifications, Set Variable, SNMP Notification, and System Operation.
All Actions Versions	ops_notification_v	Contains details about previous versions of all task actions: Abort Action, Email Notifications, Set Variable, SNMP Notification, and System Operation. New versions of Action records are created when a task record is updated.
OMS Servers	ops_oms_server	Provides details about OMS Servers.
Output Messages	ops_output_msg	(For internal use only.)
Permissions	ops_permission	Contains details about Universal Controller Permissions assigned to Universal Controller Users and Universal Controller User Groups.
Promotion History	ops_promotion_history	Contains a list of Bundles 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 Promotion Schedules.
Reports	ops_report	Contains information about Controller Reports.
Outstanding Requests	ops_resource_order	Contains any outstanding requests for a Virtual Resource by a task instance.
Currently In Use By	ops_resource_usage	Contains details about Virtual resource usage, as displayed in the Currently In Use By tab.
SAP Connections	ops_sap_connection	Contains SAP Connection records.
SAP Connections Versions	ops_sap_connection_v	Contains previous versions of SAP Connection records.
Schemas	ops_schema	Contains version information about database schemas.
Scripts	ops_script	Contains Script records.
Scripts Versions	ops_script_v	Contains previous versions of Script records.
SNMP Notifications	ops_snmp_cluster_notification	Contains SNMP notifications defined for Cluster Nodes.
SNMP Notifications	ops_snmp_conn_notification	Contains SNMP Notification-specific data associated with Agents and OMS Servers.
SNMP Managers	ops_snmp_connection	Contains SNMP Manager records.
SNMP Managers Versions	ops_snmp_connection_v	Contains previous versions of SNMP Manager records.
SNMP Notifications	ops_snmp_notification	Contains SNMP notifications defined for Tasks.
SNMP Notifications Versions	ops_snmp_notification_v	Contains previous versions of SNMP notifications defined for Tasks. (Versions are created only when a task is updated.)

SQL Results Set	ops_sql_results	Contains output from SQL tasks .
SQL Warnings Set	ops_sql_warnings	Contains warnings returned by executed SQL statements.
Stored Procedure Parameters	ops_stored_proc_param	Contains Parameter records associated with Stored Procedure tasks .
Stored Procedure Parameters Versions	ops_stored_proc_param_v	Contains previous versions of Parameter records associated with Stored Procedure tasks . (Versions are created only when the task is updated.)
Subscription	ops_subscription	(For internal use only.)
System Operations	ops_system_operation	Contains details about System Operation actions .
System Operations Versions	ops_system_operation_v	Contains details about previous versions of System Operation actions . (Versions of records are created only when a record is updated.)
All Tasks	ops_task	Contains details about tasks of every type , along with associated Task Instance information.
Application Control Tasks	ops_task_application_control	Contains details about Application Control tasks .
Application Control Task Versions	ops_task_application_control_v	Shows previous versions of Application Control tasks .
Email Tasks	ops_task_email	Contains details about Email tasks .
Email Task Versions	ops_task_email_v	Contains previous versions of Email task records .
File Monitors	ops_task_file_monitor	Contains details about File Monitor tasks .
File Monitor Versions	ops_task_file_monitor_v	Contains previous versions of File Monitor task records .
File Transfer Tasks	ops_task_ftp	Contains details about File Transfer tasks .
File Transfer Tasks Versions	ops_task_ftp_v	Contains previous versions of File transfer task records .
FTP File Monitors	ops_task_ftp_file_monitor	Contains details about FTP File Monitor tasks .
FTP File Monitors Versions	ops_task_ftp_file_monitor_v	Contains previous versions of FTP File Monitor task records .
Universal Command Tasks	ops_task_indesca	Contains details about Universal Command tasks .
Universal Command Task Versions	ops_task_indesca_v	Contains previous versions of Universal Command task records .
Manual Tasks	ops_task_manual	Contains details about Manual tasks .
Manual Task Versions	ops_task_manual_v	Contains previous versions of Manual task records .
Task Monitors	ops_task_monitor	Contains details about Task Monitor tasks .
Task Monitors Versions	ops_task_monitor_v	Contains previous versions of Task Monitor task records .
Task Run Criteria	ops_task_run_criteria	Contains run criteria information for tasks within Workflows .
Task Run Criteria Versions	ops_task_run_criteria_v	Contains previous versions of run criteria information for tasks within Workflow . (Versions are created only when the Workflow task is updated.)
SAP Tasks	ops_task_sap	Contains SAP task records .
SAP Tasks Versions	ops_task_sap_v	Contains previous versions of SAP task records .
Timer Tasks	ops_task_sleep	Contains details about Timer tasks .
Timer Tasks Versions	ops_task_sleep_v	Contains previous versions of Timer tasks records .
SQL Tasks	ops_task_sql	Contains details about SQL tasks .
SQL Tasks Versions	ops_task_sql_v	Contains previous versions of SQL tasks records .
Mutually Exclusive	ops_task_to_exclusive	Contains relationship information between tasks and mutually exclusive tasks ; that is, which tasks are mutually exclusive with each other.

Mutually Exclusive Versions	ops_task_to_exclusive_v	Contains previous versions of relationship information between tasks and mutually exclusive tasks.
Stored Procedure Tasks	ops_task_stored_proc	Contains details about Stored Procedure tasks.
Stored Procedure Tasks Versions	ops_task_stored_proc_v	Contains previous versions of Stored Procedure tasks records.
System Monitors	ops_task_system_monitor	Contains System Monitor task records.
System Monitors Versions	ops_task_system_monitor_v	Contains previous versions of System Monitor task records.
Task Virtual Resources	ops_task_to_resource	Contains relationship information between Virtual resources and tasks; that is, which tasks are assigned to which Virtual Resources.
Task Virtual Resources Versions	ops_task_to_resource_v	Contains previous versions of relationship information between Virtual resources and tasks.
Linux/Unix Tasks	ops_task_unix	Contains details about Linux/Unix tasks.
Linux/Unix Tasks Versions	ops_task_unix_v	Contains previous versions of Linux/Unix task records.
All Tasks Versions	ops_task_v	Contains previous versions of all task records.
Variable Monitor Tasks	ops_task_variable_monitor	Contains details about Variable Monitor tasks.
Variable Monitor Tasks Versions	ops_task_variable_monitor_v	Contains previous versions of Variable Monitor task records.
Windows Tasks	ops_task_windows	Contains details about Windows tasks.
Windows Tasks Versions	ops_task_windows_v	Contains previous versions of Windows task records.
Workflow Tasks	ops_task_workflow	Contains details about Workflow tasks.
Task Workflow Dependencies	ops_task_workflow_edge	Contains information about the conditions specified between tasks in workflows .
Workflow Task Edges	ops_task_workflow_edge_v	Contains previous versions of information about the conditions specified among tasks in workflows . (New versions of records are created only when the Workflow task is updated.)
Workflow Tasks Versions	ops_task_workflow_v	Contains previous versions of workflow task records.
Workflow Tasks Vertices	ops_task_workflow_vertex	Contains relationship information between tasks and workflows ; that is, which tasks are in which workflows .
Workflow Tasks Vertices Versions	ops_task_workflow_vertex_v	Contains previous versions of the relationship between tasks and workflows . (Versions are created only when the workflow task is updated.)
z/OS Tasks	ops_task_zos	Contains details about z/OS tasks.
Restart Criteria	ops_task_zos_rstrt_criteria	Contain information about z/OS task restart criteria .
Restart Criteria	ops_task_zos_rstrt_criteria_v	Contains previous versions of z/OS task restart criteria .
Step Conditions	ops_task_zos_stepcond	Contains details about z/OS task step conditions
Step Conditions	ops_task_zos_stepcond_v	Contains previous versions of z/OS task step conditions
z/OS Tasks Versions	ops_task_zos_v	Contains previous versions of z/OS task 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 triggers of every type.
Application Monitor Triggers	ops_trigger_appl_monitor	Contains details about Application Monitor triggers.
Application Monitor Triggers Versions	ops_trigger_appl_monitor_v	Contains details about previous versions of Application Monitor triggers.
All Components	ops_trigger_component	Contains details about all Composite trigger components.

File Monitor Components	ops_trigger_component_fm	Contains details about File Monitor components of Composite Triggers.
File Monitor Components	ops_trigger_component_fm_v	Contains details about previous versions of File Monitor components of Composite Triggers.
Time Components	ops_trigger_component_time	Contains details about Time components of Composite Triggers.
Time Components	ops_trigger_component_time_v	Contains details about previous versions of Time components of Composite Triggers.
Task Monitor Components	ops_trigger_component_tm	Contains details about Task Monitor components of Composite Triggers.
Task Monitor Components	ops_trigger_component_tm_v	Contains details about previous versions of Task Monitor components of Composite Triggers.
All Components	ops_trigger_component_v	Contains details about previous versions of all Composite trigger components.
Composite Triggers	ops_trigger_composite	Contains details about Composite trigger records.
Composite Triggers	ops_trigger_composite_v	Contains details about previous versions of Composite trigger records.
Cron Triggers	ops_trigger_cron	Contains details about Cron trigger records.
Cron Trigger Versions	ops_trigger_cron_v	Contains previous versions of Cron trigger records.
File Monitor Triggers	ops_trigger_fm	Contains details about File Monitor triggers .
File Monitor Triggers Versions	ops_trigger_fm_v	Contains previous versions of File Monitor trigger records.
Forecasts	ops_trigger_forecast	Contains details about trigger forecasts .
Manual Triggers	ops_trigger_manual	Contains Manual trigger records.
Manual Trigger Versions	ops_trigger_manual_v	Contains previous versions of Manual trigger records.
Temporary Triggers	ops_trigger_temp	Contains details about Temporary triggers .
Temporary Triggers Versions	ops_trigger_temp_v	Contains previous versions of Temporary trigger records.
Time Triggers	ops_trigger_time	Contains details about Time triggers .
Time Triggers Versions	ops_trigger_time_v	Contains previous versions of Time trigger records.
Task Monitor Triggers	ops_trigger_tm	Contains details about Task Monitor triggers .
Task Monitor Triggers Versions	ops_trigger_tm_v	Contains previous versions of Task Monitor trigger records.
All Triggers Versions	ops_trigger_v	Contains previous versions of Trigger records.
Variable Monitor Triggers	ops_trigger_vm	Contains details about Variable Monitor triggers .
Variable Monitor Triggers Versions	ops_trigger_vm_v	Contains previous versions of Variable Monitor trigger records.
Linux/Unix Agents	ops_unix_agent	Contains details about Linux/Unix agent resources .
Linux/Unix Agent Clusters	ops_unix_agent_cluster	Contains details about Linux/Unix agent clusters .
Linux/Unix Agents In Cluster	ops_unix_agent_cluster_join	Shows relationship information between Unix agents and Unix agent clusters , that is, which agents belong to which clusters.
Linux/Unix Agents In Cluster Versions	ops_unix_agent_cluster_join_v	Shows previous versions of relationship information between Unix agents and Unix agent clusters .
Linux/Unix Agent Clusters Versions	ops_unix_agent_cluster_v	Contains previous versions of Linux/Unix cluster records.
Users	ops_user	Contains details about User records .
Group Members	ops_user_grmember	Contains relationship information between Universal Controller User Groups and Universal Controller Users ; that is, which Users belong to which Groups.
Groups	ops_user_group	Contains details about Universal Controller User Groups .

User Roles	ops_user_has_role	Contains details about Users and Roles, including which Users have which Roles.
User Preferences	ops_user_preference	Contains information about Universal Controller User Preferences.
User Roles	ops_user_role	Contains information about available user roles.
User Roles Contains	ops_user_role_contains	Contains information about roles that comprise parent roles user roles.
User Tokens	ops_user_token	Contains information about user sessions.
Variables	ops_variable	Contains details about Global variables, entered by selecting Variables from the Navigation pane.
Set Variables	ops_variable_action	Contains details about Set Variable actions.
Set Variables	ops_variable_action_v	Contains previous versions of Set Variable actions.
Variables Versions	ops_variable_v	Contains previous versions of Global variables.
Virtual Resources	ops_virtual_resource	Contains details about Virtual resource records.
Virtual Resources Versions	ops_virtual_resource_v	Contains previous versions of Virtual resources.
Widgets	ops_widget	Contains details about all Widgets.
Widgets Activity	ops_widget_activity	Contains details about Activity Widgets.
Widgets Report	ops_widget_report	Contains details about Report Widgets.
Widgets System	ops_widget_system	Contains details about System Widgets.
Windows Agents In Cluster	ops_win_agent_cluster_join	Shows relationship information between Windows agents and Windows agent clusters, that is, which agents belong to which clusters.
Windows Agents In Cluster Versions	ops_win_agent_cluster_join_v	Shows previous versions of relationship information between Windows agents and Windows agent clusters.
Windows Agents	ops_windows_agent	Contains details about Windows agents.
Windows Agent Clusters	ops_windows_agent_cluster	Contains details about Windows agent clusters.
Windows Agent Clusters Versions	ops_windows_agent_cluster_v	Contains previous versions of Windows Agent Cluster records.
z/OS Agents	ops_zos_agent	Contains details about z/OS agents.
All Step Actions	ops_zos_step_action	Contains details about z/OS step actions.
System Operations	ops_zos_step_action_sysop	Contains details about z/OS System Operation step actions.
System Operations Versions	ops_zos_step_action_sysop_v	Contains details about previous versions of z/OS System Operation step actions . (Versions are created only when a record is updated.)
Step Actions	ops_zos_step_action_v	Contains previous versions of z/OS step actions. (Versions are created only when a record is updated.)