



Opswise Automation Center 5.1.1

Installation and Administration Guide

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Installation

Installation, Upgrade, and Applying Maintenance



Overview



Upgrade Instructions

Installation, Upgrade, and Applying Maintenance Overview

Overview

Upgrading the Opwise

Upgrading the Opwise

Upgrading the Opwise



Installation Instructions

Installation Procedure

Downloading Java Runtime Environment

Installing Apache Tomcat

Installing a Database

Downloading Opwise Software

Installing the Opwise Controller

Installing the Opwise Bundled Controller on AIX

Installing the Opwise Outboard

Installing the Opwise Agent

Verify Outboard and Agent Installation



Applying Maintenance

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The information on these pages also is located in the Opwise Automation Center 5.1.1 Installation and Administration Guide.pdf.

Installation, Upgrade, and Applying Maintenance Overview

Installation

If you are installing Opswise Automation Center for the first time, see [Installing Opswise Automation Center](#) for instructions.

Upgrade

If you are upgrading from a previous version of Opswise Automation Center - for example, from Opswise 5.1.0 to Opswise 5.1.1 - see [Upgrading Opswise Automation Center](#) for instructions.

Applying Maintenance


If you are applying maintenance to your version of Opswise Automation Center - for example, applying an Opswise Controller 5.1.1.4 maintenance package to an Opswise Controller 5.1.1.3 installation - see [Applying Opswise Automation Center Maintenance](#).

Installing Opwise Automation Center



Installation Procedure



Installation

This page identifies the procedure for a new installation of Opswise Automation Center.

 **Note**

- If you are **upgrading** from a previous version of Opswise - for example, from Opswise 5.1.0 to Opswise 5.1.1 - see [Upgrading Opswise Automation Center](#) for instructions.
- If you are **applying maintenance** to your version of Opswise Automation Center - for example, applying an Opswise Controller 5.1.1.4 maintenance package to an Opswise Controller 5.1.1.3 installation - see [Applying Opswise Automation Center Maintenance](#) for instructions.

Step 1	Check Ports Configuration	Ports configured for Workload Automation 5 components and prerequisites cannot be blocked by a firewall. See Ports Configuration to check the default ports for all Opswise Automation Center components and prerequisites.
Step 2	Determine Space Requirements	Determine the space requirements for your Opswise Automation Center components and database.
Step 3	Create Home Base Directory	We recommend creating a directory that will serve as a "home base" for these installation procedures. When you download Opswise software, copy it to this directory as a central repository.
Step 4	Install Prerequisite Software	<p>Before downloading and installing Opswise, install the following prerequisites:</p> <ol style="list-style-type: none"> 1. Java Runtime Environment 2. Apache Tomcat 3. Database <div data-bbox="672 1115 1445 1318" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note</p> <p>The Opswise Bundled Controller, which is the Opswise Controller bundled with Apache Tomcat (currently available only for the AIX operating system), does not require Apache Tomcat as a prerequisite; Apache Tomcat is installed automatically as part of the Opswise Bundled Controller installation procedure.</p> </div>
Step 5	Download Opswise Software	Download the Opswise software packages appropriate for your platform. See Downloading Opswise Software for steps on how to download the Opswise software components.
Step 6	Install and Verify the Controller	<p>The Opswise Controller is a Java web application running in a Tomcat web container. For this reason, the Opswise Controller software and the Opswise Controller installation procedure are basically the same for all platforms.</p> <div data-bbox="672 1549 1445 1728" style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note</p> <p>The procedure for installing the Opswise Bundled Controller (currently available only for the AIX operating system), which includes installation of Apache Tomcat, is different than the installation procedure for the Opswise Controller.</p> </div>

<p>Step 7</p>	<p>Install the Outboard</p>	<p>The Opswise Outboard comprises the components - the Message Hub and Transporter - that provide communications with the Opswise agent, along with the Command Line Interface (CLI). The software and instructions for installing the Opswise Outboard differ for each platform.</p> <div data-bbox="672 279 1445 411" style="background-color: #ffffcc; padding: 10px; margin-top: 20px;"> <p> Note On z/OS, the Command Line Interface component is installed as part of the z/OS Agent.</p> </div>
<p>Step 8</p>	<p>Install the Agent</p>	<p>The software and instructions for installing the Opswise Agent differ for each platform.</p> <div data-bbox="672 520 1445 653" style="background-color: #ffffcc; padding: 10px; margin-top: 20px;"> <p> Note You can install Agents before, during, or after installation of the Controller and Outboard.</p> </div>
<p>Step 9</p>	<p>Verify Outboard and Agent Installation</p>	<p>Verify that your Outboard and Agent components are installed, running, and communicating with the Controller.</p>

Downloading Java Runtime Environment

To download the Java Runtime Environment (JRE), access the Oracle site for Java JREs and download the appropriate package for your platform:

<http://www.oracle.com/technetwork/java/javase/downloads/index.html>



Note

JRE levels 1.6 and 1.7 are supported.

Installing Apache Tomcat

- [Install Apache Tomcat](#)
- [Start and Validate Apache Tomcat](#)



Note

Apache Tomcat versions 6.0.x and 7.0.x are supported.

Install Apache Tomcat

Perform the following steps to install Apache Tomcat (download and installation procedure for Apache Tomcat may vary a bit for each platform):

Step 1	<p>Select an appropriate method of installation:</p> <p>Windows We recommend using the GUI installer to create the Apache Tomcat Service:</p> <ol style="list-style-type: none"> 1. Download the "32-bit/64-bit Windows Service Installer" from Tomcat 6.0.xx or Tomcat 7.0.xx. 2. Follow the instructions to install the package. <p>Windows or Linux/Unix Download a tar.gz or zip package that you unzip into a directory:</p> <ol style="list-style-type: none"> 1. Download an appropriate package from Tomcat 6.0.xx or Tomcat 7.0.xx. 2. Follow the instructions to unzip the appropriate package (tar.gz or zip) into a directory on your file system. <p>Linux/Unix: Redhat and Centos distributions Instead of downloading a tar.gz or zip package, you can use the yum installer.</p>
Step 2	<p>In order to accommodate large workloads, Opwise Controller requires that you update the JVM variables to the following minimum values:</p> <p>AIX</p> <pre>CATALINA_OPTS="-Xms512m -Xmx1024m"</pre> <p>z/Linux</p> <pre>CATALINA_OPTS="-Xms512m -Xmx1024m -Xjit:optLevel=noOpt"</pre> <p>All other platforms</p> <pre>CATALINA_OPTS="-Xms512m -Xmx1024m -XX:MaxPermSize=256m"</pre>

Select an appropriate method of updating the JVM variables:

All platforms

Add this value to `$TOMCAT_HOME/bin/catalina.bat` or `$TOMCAT_HOME/bin/catalina.sh` as the first line after the comment box.

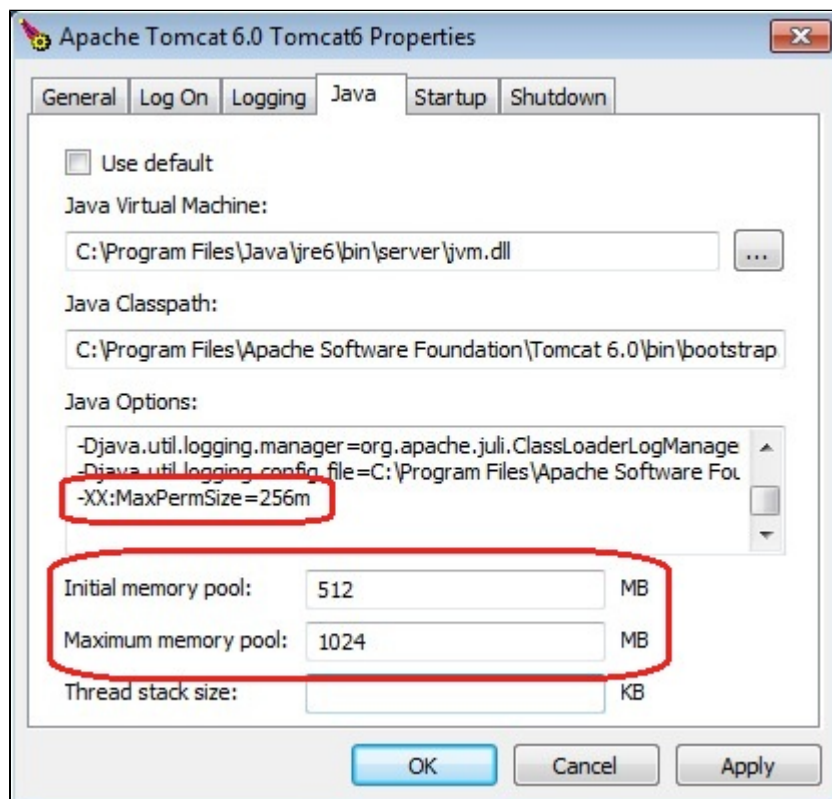
All platforms

Add this parameter to the environment variables.

Windows

If you installed Tomcat as a Windows service, you can set values using the `$TOMCAT_HOME\bin\tomcatw.exe` GUI tool. Enter the parameters as follows:

- Enter the `MaxPermSize` parameter as a Java Option
- Initial memory pool = minimum heap size (Xms)
- Maximum memory pool = Maximum heap size (Xmx)



Note

Later, after you start Tomcat and log in to Opwise, you can validate these settings by running the `memory_usage.js` script, as follows:

1. From the navigation pane, select **Configuration > Maintenance Scripts**.
2. Run the `memory_usage.js` script. The min and max numbers on the top line (Heap) should be similar to the above settings.

Start and Validate Apache Tomcat

Perform the following steps to start and validate Apache Tomcat:

Step 1 Tomcat is normally run as a system service or daemon. You can start Tomcat using the standard method for your operating system or by using a script, as follows:

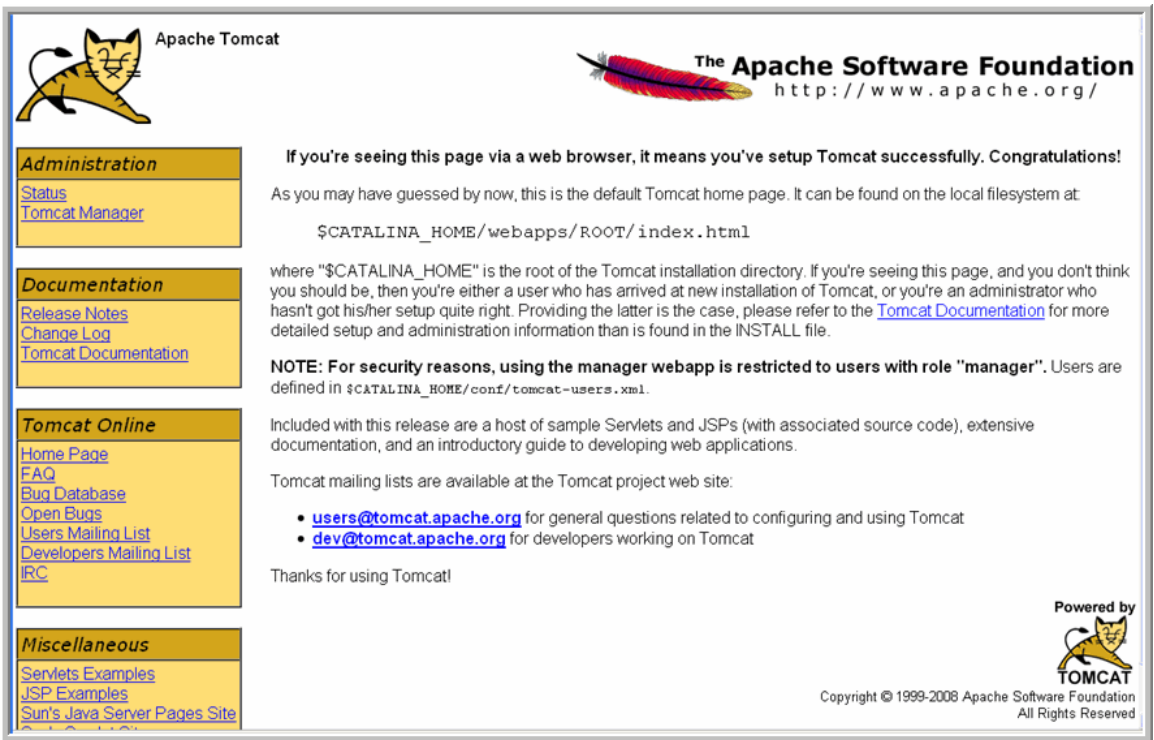
Windows
Use Windows Services to start Tomcat or start Tomcat from the command line as follows: `net start <name of Tomcat service>`.

Linux
Start the Tomcat daemon using the script placed in the `/etc/init.d` directory for Tomcat: `service <name of Tomcat service> start`.

Windows or Linux
Start the service using the `$TOMCAT_HOME/bin/startup.bat` or `$TOMCAT_HOME/bin/startup.sh` scripts.

Step 2 Open a browser and go to the following URL: <http://localhost:8080>.

Step 1 The following screen displays, verifying that you have successfully installed and started Tomcat:



Installing a Database

- Overview
- Database Management Systems
 - MySQL
 - Microsoft SQL Server
 - Oracle

Overview

Opwise can use a database space of an existing database or you can install a database specifically for Opwise.

We recommend an initial size of 100MB.

Database Management Systems

The following database management systems are supported:

- MySQL
- Microsoft SQL Server
- Oracle

MySQL



Note
MySQL versions 5.1.x and 5.5.x are supported.

Step 1	Download MySQL installation instructions .
Step 2	Download MySQL (Windows only). <ul style="list-style-type: none"> • For Windows, select Windows (x86, 32-bit), MSI Installer • For Unix and Linux, you can use a tar.gz download or select a systems package installer appropriate for your environment, such as Yum.
Step 3	Install MySQL as per the instructions.
Step 4	Make a note of the userid and password to be used later when installing the Opwise Controller.
Step 5	The database will be created automatically when you select MySQL during the Opwise installation process.

MySQL Options

The following enhancements can be made to your MySQL database.

Speeding Up MySQL Performance

For Windows installations, you can speed up MySQL performance by adding the following parameter to the appropriate `MySQL.ini` file:

```
innodb_flush_log_at_trx_commit=0
```

For more information about this parameter, see the MySQL documentation:

http://dev.mysql.com/doc/refman/5.1/en/innodb-parameters.html#sysvar_innodb_flush_log_at_trx_commit

Setting the MySQL max_allowed_packet Configuration Variable

A communication packet is a single SQL statement sent to the MySQL server, a single row that is sent to the client, or a binary log event sent from a master replication server to a slave.

If you want Opwise to handle big packets, you must increase the MySQL **max_allowed_packet** configuration variable on the database server.

For detailed information about this variable, refer to the [MySQL reference manual](#).

Microsoft SQL Server



Note

Microsoft SQL Server versions 2005, 2008, and 2012 are supported.

(If you are using Microsoft SQL Server 2005, when you create the database, set it to be CASE INSENSITIVE.)

Step 1	Download and install MS SQLServer as per the Microsoft documentation.
Step 2	Create the Opwise database. You can use any legal name, but we recommend the name opwise .
Step 3	Make a note of the userid and password to be used later when installing the Opwise Controller.

Oracle



Note

Oracle versions 10g and 11g are supported.

Step 1	Download and install Oracle as per the Oracle documentation.
Step 2	Create the Opwise database. You can use any legal name, but we recommend the name opwise .
Step 3	Make a note of the userid and password to be used later when installing the Opwise Controller.

Oracle Options

The following enhancement can be made to your Oracle database.

Setting *open_cursors* Value for Large Imports

To facilitate large imports on Oracle, specify the maximum number of cursors that can be open by setting the **open_cursors** value to 1000.

(The cursors are used only during the import; they then are closed.)

Checking the Current Value of *open_cursors*

To check the current value for maximum open cursors, issue the following **sql*plus** utility command:

```
show parameter open_cursors
```

A listing similar to the following will display:

```
SQL> show parameter open_cursors;
NAME                                TYPE        VALUE
-----
open_cursors                        integer     1000
```

Setting a New Value for `open_cursors`

You can temporarily set the `open_cursors` value with the following SQL:

```
alter system set open_cursors=1000
```

To make a permanent change, you must set the `open_cursors` value in the initialization parameters file.



Note

If you do not set `open_cursors` to 1000, you could receive the following error message during large imports:

```
ORA-01000: maximum open cursors exceeded
```

Downloading Opwise Software

- [Overview](#)
- [Downloading Current Products Software](#)
- [Downloading Maintenance Software](#)


Overview

This page tells you how to download the following from the Stonebranch website:

- Software for all current Opwise products.
- Latest version of Maintenance software, if any exists, that is appropriate for the current Opwise products software on your platform.

Downloading Current Products Software

To download the Opwise software for its current products:

Step 1	Log in to the Stonebranch website. If you do not have a login, you can register for access on the login page.
Step 2	Under Downloads , click Current Products to access the Current Product Downloads page. <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> Note To install all Opwise software, you must download a package from each of the following tables:</p> <ul style="list-style-type: none"> • Workload Automation 5.1.0 Agents • Opwise Automation Center Controller (Core) 5.1.1 • Opwise Automation Center Outboard 5.1.0 </div>
Step 3	From each table: <ol style="list-style-type: none"> 1. Locate the package download file appropriate for your platform. 2. Click the DOWNLOAD button. 3. In response to the prompt, click Save File and browse to your save location. <p>You can then install the software.</p>

Downloading Maintenance Software

To download maintenance software:

Step 1	Log in to the Stonebranch website.
Step 2	Under Downloads , click Maintenance to access the Maintenance page.
Step 3	Select and download an Opwise maintenance package that is appropriate for your Opwise software release.
Step 4	Extract the package and follow the instructions provided in the README file.

Installing the Opwise Controller

- Overview
- Unpack the Downloaded Opwise Controller File
- Run the Installation Script
 - Command Line Switches
 - Examples
- Deploy the Controller
- Verify the Installation
- Apply the License Key
 - License Information
- Configure System Notifications
 - System Notifications for License Violations and Expirations
 - System Notification for System Operations

Overview

This page tells you how to install the Opwise Controller. It describes the following procedures:

1	Unpack the Downloaded Opwise Controller File
2	Run the Installation Script
3	Deploy the Controller
4	Verify the Installation
5	Apply the License Key
6	Configure System Notifications

These procedures assume that you already have completed the following:

- Installed the prerequisite software
- Downloaded Opwise components

Unpack the Downloaded Opwise Controller File

Unpack the Opwise Controller file as follows:

Linux/Unix	<pre>tar xvf opwise-controller-N.N.N.N.tar</pre>
Windows	Use an appropriate archiving / unzipping product.

Run the Installation Script

To run the Opwise Controller installation script, use one of the following commands (depending on your platform):

Linux	<pre>> sh install-controller.sh</pre>
Windows	<pre>> install-controller.bat</pre>

When you run the script, you must include command line switches that specify information the Controller needs to access the Tomcat installation directory, the war file, and the database. You can include additional command line switches, but they are not required.

If a required command line switch is missing from the command line, an error message will identify it during the installation process.

The Controller installation process writes the values for some command line switches to the [Controller properties file, glide.properties](#) (see the table, below). For any of those command line switches that are not required and, in fact, are not included in the script, the Controller installation process writes their default value to the Controller properties file.

Command Line Switches

The following table describes the command line switches for the Controller installation process and identifies which are required in the script.

For command line switches that have their value written to the [Controller properties file, glide.properties](#), the table also identifies the property in that file to which the value is written.



Note

All command line switches are case-sensitive.

Command Line Switch	Description	Default						
<code>--controller-file</code>	Full path of the Opwise war file from the downloaded Opwise Controller package.	none						
<code>--dbname</code>	Opwise database name.	opwise						
<code>--dbpass</code>	Database user's password.	none						
<code>--dburl</code>	JDBC connect URL. Format: <code>jdbc:[database type]://localhost</code> Examples (for MS SQLServer and Oracle, <code>opwise</code> is the database name): <table border="1" data-bbox="495 1276 1274 1470"> <tbody> <tr> <td>MySQL</td> <td><code>jdbc:mysql://localhost/</code></td> </tr> <tr> <td>MS SQL Server</td> <td><code>jdbc:sqlserver://localhost:1433;DatabaseName=opwise</code></td> </tr> <tr> <td>Oracle</td> <td><code>jdbc:oracle:thin:@//localhost:1521/opwise</code></td> </tr> </tbody> </table>	MySQL	<code>jdbc:mysql://localhost/</code>	MS SQL Server	<code>jdbc:sqlserver://localhost:1433;DatabaseName=opwise</code>	Oracle	<code>jdbc:oracle:thin:@//localhost:1521/opwise</code>	<code>jdbc:mysql://localhost</code>
MySQL	<code>jdbc:mysql://localhost/</code>							
MS SQL Server	<code>jdbc:sqlserver://localhost:1433;DatabaseName=opwise</code>							
Oracle	<code>jdbc:oracle:thin:@//localhost:1521/opwise</code>							
<code>--dbuser</code>	Database user name.	none						
<code>--hubhost</code>	Hostname or IP address of the Message Hub.	localhost						
<code>--hubport</code>	Port to use to communicate with the Message Hub.	6776						

<pre>--rdbms</pre>	<p>Database type.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> mysql sqlserver oracle <p>* --rdbms <i>is</i> required if --dburl is used in the script.</p>	mysql
<pre>--tomcat-dir</pre>	<p>Path to the Tomcat installation directory (contains the directories:/bin, /conf, /logs, webapps).</p>	none

Examples

Shown below are sample commands for installing the Controller on Linux and Windows platforms, using defaults for the database:

Linux	<pre>sh install-controller.sh --tomcat-dir ~/tomcat --controller-file ./opwise-controller-N.N.N.N-build.N.war --dbuser root --dbpass userpass</pre>
Windows	<pre>install-controller.bat --tomcat-dir "c:\Program Files\Apache Software Foundation\Tomcat 7.0" --controller-file opwise-controller-N.N.N.N-build.N.war --dbuser root --dbpass userpass</pre>

Deploy the Controller

In this procedure, you will start Tomcat, which starts the Opwise Controller and builds your database tables. This process takes several minutes. When it is complete, the Controller is started and ready to use.

If Tomcat already was running when you ran the Opwise installer, you do not need to stop and restart it; this process will occur automatically after you launch the Opwise installer.

Step 1	<p>Start Tomcat as follows:</p> <p>Linux Start the Tomcat daemon using the script placed in the <code>/etc/init.d</code> directory for Tomcat.</p> <pre>service [name of Tomcat service] start</pre> <p>Windows We recommend you use Windows Services to start Tomcat. Or, you can start Tomcat from the command line as follows:</p> <pre>net start [name of Tomcat service]</pre> <p>Linux or Windows You can start the service using the <code>\$TOMCAT_HOME/bin/startup.bat</code> or <code>\$TOMCAT_HOME/bin/startup.sh</code> scripts.</p>
---------------	---

Step 2 During this initial startup, Opwise builds the database tables, a process that takes several minutes. You can view details in the Tomcat window or monitor the Opwise log, as described below:

Linux/Unix

Users can tail the `opwise.log` to monitor the deployment process, as follows:

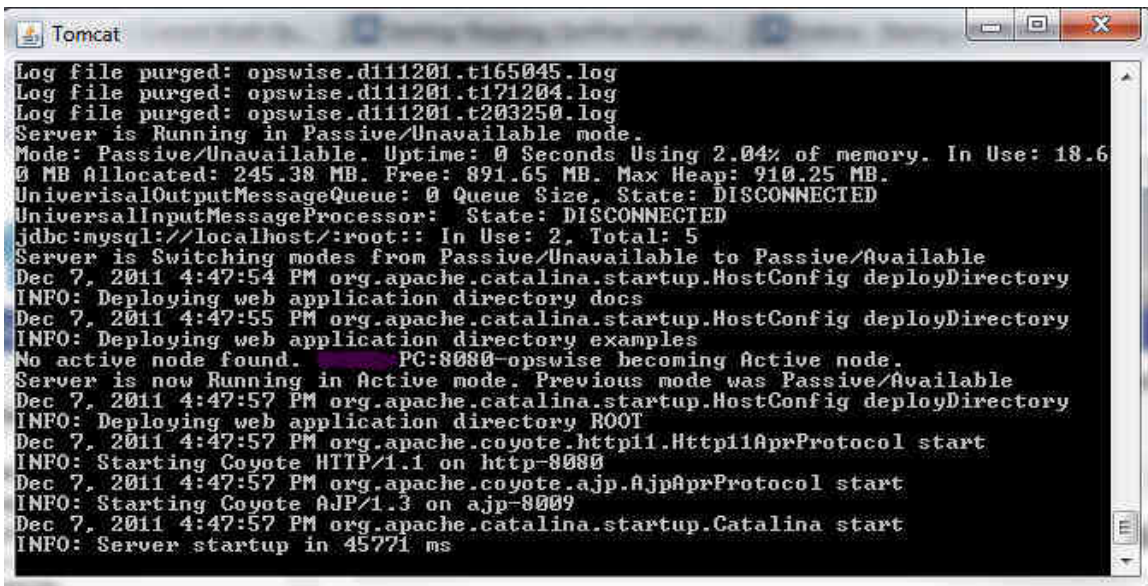
```
tail -f $TOMCAT_DIR/opwise_logs/opwise.log
```

Windows

Users can use a third-party tailing utility or open the log file using Notepad or other editor and scroll to the bottom to view the latest activity.

```
$TOMCAT_DIR/opwise_logs/opwise.log
```

Do not continue until you see output in the log similar to the following:



```
Log file purged: opwise.d111201.t165045.log
Log file purged: opwise.d111201.t171204.log
Log file purged: opwise.d111201.t203250.log
Server is Running in Passive/Unavailable mode.
Mode: Passive/Unavailable. Uptime: 0 Seconds Using 2.04% of memory. In Use: 18.6
0 MB Allocated: 245.38 MB. Free: 891.65 MB. Max Heap: 910.25 MB.
UniversalOutputMessageQueue: 0 Queue Size, State: DISCONNECTED
UniversalInputMessageProcessor: State: DISCONNECTED
jdbc:mysql://localhost/:root:: In Use: 2, Total: 5
Server is Switching modes from Passive/Unavailable to Passive/Available
Dec 7, 2011 4:47:54 PM org.apache.catalina.startup.HostConfig deployDirectory
INFO: Deploying web application directory docs
Dec 7, 2011 4:47:55 PM org.apache.catalina.startup.HostConfig deployDirectory
INFO: Deploying web application directory examples
No active node found. PC:8080-opwise becoming Active node.
Server is now Running in Active mode. Previous mode was Passive/Available
Dec 7, 2011 4:47:57 PM org.apache.catalina.startup.HostConfig deployDirectory
INFO: Deploying web application directory ROOT
Dec 7, 2011 4:47:57 PM org.apache.coyote.http11.Http11AprProtocol start
INFO: Starting Coyote HTTP/1.1 on http-8080
Dec 7, 2011 4:47:57 PM org.apache.coyote.ajp.AjpAprProtocol start
INFO: Starting Coyote AJP/1.3 on ajp-8009
Dec 7, 2011 4:47:57 PM org.apache.catalina.startup.Catalina start
INFO: Server startup in 45771 ms
```

Step 3 When you see the following, the Controller is ready:

- INFO [Ops.Cluster.Monitor.0] Server is now Running in Active mode. Previous mode was Passive/Unavailable
- INFO [Ops.Cluster.Monitor.0] Setting server to ACTIVE.

Step 4 AIX and z/Linux only: Follow this procedure to change two default values in the **Controller Properties** file, `glide.properties`, which is read by the Controller.

(The `glide.properties` file resides in `<tomcat directory>/webapps/opwise/WEB-INF/properties`).

1. Change the following two properties from their default value to the AIX - z/Linux value:

- `opwise.trustmanager.algorithm`= (Java trust manager algorithm)
 - Default value = SunX509
 - AIX - z/Linux value = IbmX509
- `opwise.trustmanager.provider`= (Java trust manager provider)
 - Default value = SunJSSE
 - AIX - z/Linux value = IBMJSSE2

2. Restart Tomcat.

You now have completed the install process and the Controller is running.

Verify the Installation

To make sure your Opwise Controller is installed and running properly:

Step 1 From your browser, open the Opwise Automation Center page.

```
http://localhost:8080/opwise
```

`localhost` represents the machine name where you installed the server.

Step 2 Log in with user `ops.admin` and no password.

Step 3 Create a password when prompted. The Opwise Automation Center home page displays.

Step 4 The home page includes a gadget called Overview, which provides current system information. Check the Release information to verify that the latest version number is displayed, as shown in the following example.

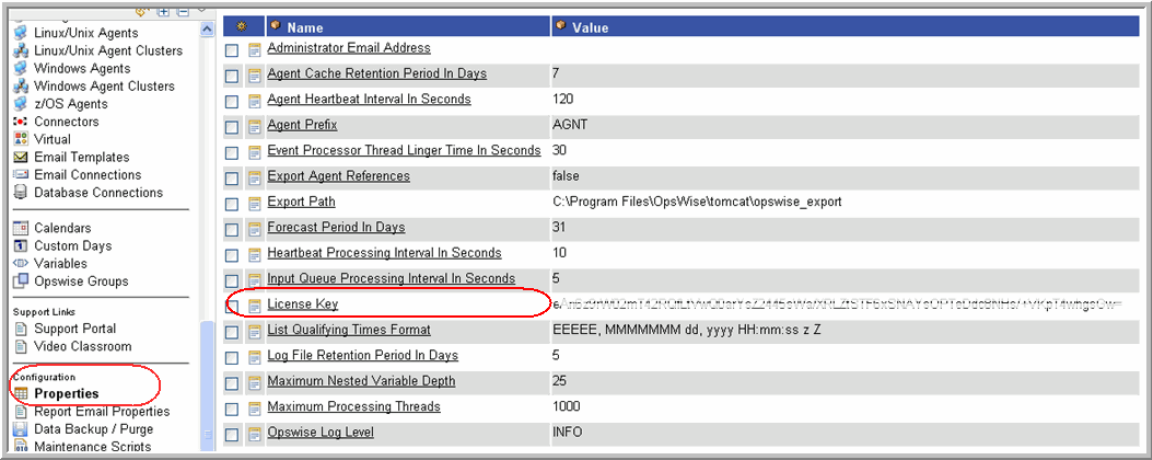
Overview	
License	[Agents: Unlimited] [Triggers: 2/2000] [Tasks: 5/2000] [Days: 8/2000]
Node	server.opswisefoftware.com:8080-opwise [Mode: Active (--PAUSED--)] - Uptime: 9 Days 23 Hours 20 Minutes 42 Seconds
Node Time	2013-08-19 13:17:52 -0700
Release	5.1.1.9
Build	build.1
Build date	08-08-2013_0317
DBMS Type	mysql
DB url	jdbc:mysql://localhost/
DB Name	opwise
DB Connections	In Use: 0, Total: 4
Active sessions	1
Memory max	455MB
Memory allocated	363MB
Memory used	274MB
Memory free	24% of allocated memory, 39% of max memory

To get started using Opwise and become familiar with its features, we recommend you spend some time going through the [Tutorials](#).

Apply the License Key


Although you do not normally need to enter a license key right away, at some point you will need to follow these steps to enter your key:

Step 1 From the navigation pane, select **Configuration > Properties > License Key**.



Name	Value
Administrator Email Address	
Agent Cache Retention Period In Days	7
Agent Heartbeat Interval In Seconds	120
Agent Prefix	AGNT
Event Processor Thread Linger Time In Seconds	30
Export Agent References	false
Export Path	C:\Program Files\Opwise\Tomcat\opwise_export
Forecast Period In Days	31
Heartbeat Processing Interval In Seconds	10
Input Queue Processing Interval In Seconds	5
License Key	6AmsZd1WU2mT42R0U1YwQ0ary6Z4f50wax0L2S1F6xDRAT0U1T0dd0bRhw1YkP1wmg0Wf
List Qualifying Times Format	EEEE, MMMMMM dd, yyyy HH:mm:ss z Z
Log File Retention Period In Days	5
Maximum Nested Variable Depth	25
Maximum Processing Threads	1000
Opwise Log Level	INFO

Step 2 Enter your encrypted license key in the Value field and click **Update**.

Step 3 Return to the Automation Center home page (click the Home  icon) and review the License field on the Overview gadget to verify that the terms of your license are correct.

Step 4 Optionally, configure Opwise Controller so that your system administrator receives notifications regarding license key violations and expirations.

License Information

The Licenses field in the Overview gadget on the Opwise Automation Center Home Page (below) identifies license information for:

- Agents
- Triggers
- Tasks
- Days

The value for each field is either:

- Unlimited (unlimited number to the license)
- N/N (number remaining in license / total number in license)

Overview

License	[Agents: Unlimited] [Triggers: 2/2000] [Tasks: 5/2000] [Days: 8/2000]
Node	server.opswise.com:8080-opswise [Mode: Active (--PAUSED--)] - Uptime: 9 Days 23 Hours 20 Minutes 42 Seconds
Node Time	2013-08-19 13:17:52 -0700
Release	5.1.1.9
Build	build.1
Build date	08-08-2013_0317
DBMS Type	mysql
DB url	jdbc:mysql://localhost/
DB Name	opswise
DB Connections	In Use: 0, Total: 4
Active sessions	1
Memory max	455MB
Memory allocated	363MB
Memory used	274MB
Memory free	24% of allocated memory, 39% of max memory

Configure System Notifications

System Notifications are emails sent to one or more Opswise Controller system administrators based on either:

- [Licensing issues](#) (license violations, expired licenses, invalid licenses)
- Status of a [system operation](#) associated with a task instance.



Note

System Notifications are not the same as Email Notifications. Please refer to the following sections for explicitly defining Email Notifications.

- [Email Notifications for Agents and Connectors](#)
- [Email Notifications for Cluster Nodes](#)
- [Email Notifications for Task Instance Events](#)

In order for a system administrator to receive system notifications, you must configure the Opswise Controller for system notifications:

Step 1	Select an email connection on which the notifications will be sent and enable the Use for System Notifications field.
	<div style="background-color: #ffffcc; padding: 10px;"> Note You can use only one Email Connection at any one time for sending system notifications. </div>
Step 2	Identify the Opswise Administrator(s) that will receive the system notifications by entering one or more valid email addresses for those administrators in the Administrator Email Address Opswise system property.

System Notifications for License Violations and Expirations

When you have configured the Controller for system notification, notifications automatically are sent to the specified system administrator(s) for the following license issues:

- License violations
- Expired licenses
- Invalid licenses

License Violations

A system notification is sent for the following license violations:

- User attempts to create a task that exceeds the licensed maximum number of task definitions.
- User attempts to enable a trigger that exceeds the licensed maximum number of enabled triggers.
- Agent registration attempt exceeds the licensed maximum number of agents.

The Licenses field in the Overview gadget on the Opswise Automation Center Home Page identifies these maximum numbers (see [License Information](#), above).

License Expiration

A system notification is sent at the following times if a license will expire in 7 days or sooner:

- Warning sent daily at midnight, processed same time as midnight log rollover, starting 7 days prior to license expiration.
- Warning sent on Opswise Controller start-up (or becoming the Active cluster node) if license is within 7 days of expiring.
- Warning sent on License Key property change (if new license is still within 7 days of expiring).

A system notification is sent at the following times if a license has expired:

- Sent daily at midnight, processed same time as midnight log rollover.
- Sent on Opswise Controller start-up (or becoming the Active cluster node).
- Sent on License Key property change (if new license still expired).
- System paused on license expiration.

Invalid Licenses

A system notification is sent at the following times if a license is invalid:

- Sent on Opswise Controller start-up (or becoming the Active cluster node).
- System paused on invalid license.

An invalid license will display in the [Overview](#) as [Agents: x/0] [Triggers: y/0] [Tasks: z/0] [Days: 1/0] where x, y, and z are the current number of agents, triggers, and tasks, respectively.

System Notification for System Operations

For any Opswise Automation Center task, you can select a system operation to be performed when any instance of that task reaches one or more specific statuses. You also can select whether or not to send system notifications based on the success and/or failure of that system operation.

For detailed information on how to set up these system notifications, see [Setting System Operations](#).

Installing the Opwise Bundled Controller on AIX

- Introduction
- Uncompress the Downloaded Tar File
- Run the Installation Script
 - Silent Install
 - Interactive Install
 - Command Line Switches / Configuration File Options
 - Example
- Verify the Installation
- Apply the License Key
 - License Information
- Configure System Notifications
 - System Notifications for License Violations and Expirations
 - System Notification for System Operations

Introduction

This page tells you how to install the Opwise Bundled Controller, which is the Opwise Controller bundled with Apache Tomcat.



Note

Currently, the Bundled Controller is available only for the AIX operating system.

This procedure assumes you already have completed the following:

- Installed the prerequisite software
- Downloaded the Opwise software

Uncompress the Downloaded Tar File

Uncompress the Opwise Bundled Controller tar file:

```
tar xvfo opwise-controller-bundle-N.N.N.N.tar
```

Among the files contained in the tar file, please note the following:

File Name	Description
<code>install.sh</code>	Installation script
<code>config</code>	Configuration file with default values

Run the Installation Script

You can install the Bundled Controller silently or interactively.

Silent Install

A silent install of the Bundled Controller uses the default values contained in the Bundled Controller configuration file, `config`:

```
./install.sh -s
```

Interactive Install

An interactive install of the Bundled Controller prompts you for values for all command line switches:

```
./install.sh <options>
```

Command Line Switches / Configuration File Options

The following table describes the command line switches / configuration file options for the Bundled Controller installation process.

The installation process writes some of the command line switch / configuration file option values to the [Controller properties file](#), `glide.properties`. The table identifies the properties in that file to which values are written.



Note

All command line switches are case-sensitive.

Command Line Switch	Configuration File Option	Description	Default	Controller Property
<code>--dbhost</code>	DBHOST	Database host name	localhost	n/a
<code>--dbname</code>	DBNAME	Database name	opswise	glide.db.name=
<code>--dbpass</code>	DBPASS	Database user password	(none)	glide.db.password=
<code>--dbport</code>	DBPORT	Database port number	3306	n/a
<code>--dbuser</code>	DBUSER	Database user name	opswise	glide.db.user=
<code>--group</code>	OPSWISE_GROUP	User group to be used for the Controller	opscntrl	n/a
<code>-h</code>	n/a	Usage screen	(none)	n/a
<code>--http-port</code>	PORT	HTTP server port number	8080	n/a
<code>--hubhost</code>	HUBHOST	Message Hub host name	localhost	opswise.hub.host=
<code>--hubport</code>	HUBPORT	Message Hub port number	6776	opswise.hub.port=

<code>--install-dir</code>	INSTALL_DIR	Installation directory	/opt/opsctrl	n/a
<code>--java-home</code>	n/a	Path to the Java installation (JAVA_HOME)	(none)	n/a
<code>--rdbms</code>	RDBMS	Database type. Valid values are: <ul style="list-style-type: none"> mysql sqlserver sqlserver-jtds oracle 	mysql	glide.db.rdbms=
<code>-s</code>	n/a	Silent (unattended) install. Default is interactive install.	(none)	n/a
<code>--shutdown-port</code>	SHUTDOWN_PORT	Server shutdown port	8005	n/a
<code>--user</code>	OPSWISE_USER	System account to be used for the Controller	opsctrl	n/a

Example

Shown below is a sample command for installing the Bundled Controller (default values are used for options not specified):

```
./install.sh -s --dbuser root --dbpass userpass
```

Verify the Installation

To make sure the Controller is installed and running properly:

Step 1	Start the Bundled Controller.
Step 2	From your browser, open the Opwise page. <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <pre>http://localhost:8080/opwise</pre> </div> <p>localhost represents the machine name where you installed the server.</p>
Step 3	Log in with user <code>ops.admin</code> and no password.
Step 4	Create a password when prompted. The Opwise Automation Center home page displays.

- Step 5** The home page includes a gadget called Overview, which provides current system information. Check the Release information to verify that the latest version number is displayed, as shown in the following example.

Overview	
License	[Agents: 4/5] [Triggers: Unlimited] [Tasks: Unlimited] [Days: 12/45]
Node	server.opswissoftware.com:8080-opswise [Mode: Active]
Node Time	2013-03-12 12:04:02 -0700
Release	5.1.1.6
Build	build.3
Build date	03-01-2013_0933
DBMS Type	mysql
DB url	jdbc:mysql://localhost/
DB Name	opswise
DB Connections	In Use: 0, Total: 3
Active sessions	2
Memory max	455MB
Memory allocated	424MB
Memory used	133MB
Memory free	68% of allocated memory, 70% of max memory

To get started using Opwise and become familiar with its features, we recommend you spend some time going through the [Tutorials](#).

Apply the License Key

Although you do not normally need to enter a license key right away, at some point you will need to follow these steps to enter your key:

- Step 1** From the navigation pane, select **Configuration > Properties > License Key**.

Name	Value
Administrator Email Address	
Agent Cache Retention Period In Days	7
Agent Heartbeat Interval In Seconds	120
Agent Prefix	AGNT
Event Processor Thread Linger Time In Seconds	30
Export Agent References	false
Export Path	C:\Program Files\Opwise\tomcat\opswise_export
Forecast Period In Days	31
Heartbeat Processing Interval In Seconds	10
Input Queue Processing Interval In Seconds	5
License Key	6Vnsz0r1MUMT5R0ULVn0QarysZMf5bWwXtLz5TfExBNAYs0PTe0ed0rHnAYMPTwvng0Wv
List Qualifying Times Format	EEEE, MMMMMM dd, yyyy HH:mm:ss z
Log File Retention Period In Days	5
Maximum Nested Variable Depth	25
Maximum Processing Threads	1000
Opwise Log Level	INFO

- Step 2** Enter your encrypted license key in the Value field and click **Update**.

- Step 3** Return to the Automation Center home page (click the Home  icon) and review the License field on the Overview gadget to verify that the terms of your license are correct.

- Step 4** Optionally, configure Opwise Controller so that your system administrator receives notifications regarding [license key violations and expirations](#).

License Information

The Licenses field in the Overview gadget on the Opwise Automation Center Home Page (below) identifies license information for:

- Agents
- Triggers
- Tasks
- Days

The value for each field is either:

- Unlimited (unlimited number to the license)
- N/N (number remaining in license / total number in license)

Configure System Notifications

System Notifications are emails sent to one or more Opwise Controller system administrators based on either:

- [Licensing issues](#) (license violations, expired licenses, invalid licenses)
- [Status of a system operation](#) associated with a task instance.



Note

System Notifications are not the same as Email Notifications. Please refer to the following sections for explicitly defining Email Notifications.

- [Email Notifications for Agents and Connectors](#)
- [Email Notifications for Cluster Nodes](#)
- [Email Notifications for Task Instance Events](#)

In order for a system administrator to receive system notifications, you must configure the Opwise Controller for system notifications:

Step 1 Select an [email connection](#) on which the notifications will be sent and enable the [Use for System Notifications](#) field.



Note

You can use only one Email Connection at any one time for sending system notifications.

Step 2	Identify the Opwise Administrator(s) that will receive the system notifications by entering one or more valid email addresses for those administrators in the Administrator Email Address Opwise system property.
---------------	---

System Notifications for License Violations and Expirations

When you have configured the Controller for system notification, notifications automatically are sent to the specified system administrator(s) for the following license issues:

- License violations
- Expired licenses
- Invalid licenses

License Violations

A system notification is sent for the following license violations:

- User attempts to create a task that exceeds the licensed maximum number of task definitions.
- User attempts to enable a trigger that exceeds the licensed maximum number of enabled triggers.
- Agent registration attempt exceeds the licensed maximum number of agents.

The Licenses field in the Overview gadget on the Opwise Automation Center Home Page identifies these maximum numbers (see [License Information](#), above).

License Expiration

A system notification is sent at the following times if a license will expire in 7 days or sooner:

- Warning sent daily at midnight, processed same time as midnight log rollover, starting 7 days prior to license expiration.
- Warning sent on Opwise Controller start-up (or becoming the Active cluster node) if license is within 7 days of expiring.
- Warning sent on License Key property change (if new license is still within 7 days of expiring).

A system notification is sent at the following times if a license has expired:

- Sent daily at midnight, processed same time as midnight log rollover.
- Sent on Opwise Controller start-up (or becoming the Active cluster node).
- Sent on License Key property change (if new license still expired).
- System paused on license expiration.

Invalid Licenses

A system notification is sent at the following times if a license is invalid:

- Sent on Opwise Controller start-up (or becoming the Active cluster node).
- System paused on invalid license.

An invalid license will display in the [Overview](#) as [Agents: x/0] [Triggers: y/0] [Tasks: z/0] [Days: 1/0] where x, y, and z are the current number of agents, triggers, and tasks, respectively.

System Notification for System Operations

For any Opwise Automation Center task, you can select a system operation to be performed when any instance of that task reaches one or more specific statuses. You also can select whether or not to send system notifications based on the success and/or failure of that system operation.

For detailed information on how to set up these system notifications, see [Setting System Operations](#).

Installing the Opswise Outboard

Installing the Opswise Outboard - Overview



IMPORTANT

The [Opswise Controller](#) must be installed on your platform before you install the Opswise Outboard.

These pages provide platform-specific instructions for installing the Opswise Outboard (Message Hub, Transporter, and Command Line Interface):

- [Installing the Opswise Outboard on AIX](#)
- [Installing the Opswise Outboard on HP-UX](#)
- [Installing the Opswise Outboard on Linux](#)
- [Installing the Opswise Outboard on Solaris](#)
- [Installing the Opswise Outboard on Windows](#)

After installing the Opswise Outboard on any platform, you should [verify the installation](#).

Installing the Opwise Outboard on AIX

- Before Installing the Outboard
- Installing the Outboard
 - Installation Command
 - Sample Install Script
 - Command Line Switches
- Starting the Outboard Components
- Uninstall the Outboard Components

Before Installing the Outboard

The following table identifies procedures that you must perform and information that you must have on hand before you install the Outboard:

1	<p>These instructions assume you already have:</p> <ul style="list-style-type: none"> • Installed the prerequisite software. • Downloaded the Opwise Outboard package. • Installed the Opwise Controller.
2	<p>In order to install the Outboard components - Message Hub, Transporter, and Command Line Interface (CLI) - you will need the following information:</p> <ul style="list-style-type: none"> • Opwise user name • Root directory name for the Opwise software • Transporter socket list • Port used by Transporter
3	<p>Log in as the root user and make sure that the downloaded Opwise Outboard package has the executable bit set. If it does not, set it with the following command:</p> <pre style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"># chmod +x opwise-outboard-aix-powerpc-N.N.N.N.sh</pre>

Installing the Outboard

This section describes the installation command, script, and command line switches used to provide a complete installation of all Opwise Outboard features.

Installation Command

Issue the following command to run the install script, which installs the Opwise Outboard components in a UNIX environment:

```
# ./opwise-outboard-aix-powerpc-N.N.N.N.sh command line switches [command line switches]
```

You must include required command line switches for specific Transporter and user information; you also can include optional command line switches (see [Command Line Switches](#), below). If a required switch is missing from the command line, you will be prompted to enter it during the installation process.

We recommend copying the Sample Install Script, below, into your command shell and editing the [command line switches](#) with your site-specific information.

Sample Install Script

The following is a sample install script for installing Opwise Outboard for AIX:

```
./opwise-outboard-aix-powerpc-N.N.N.N.sh --user opwise --user-home /home/opwise --transports
4803@127.0.0.1
--tspport 4803 --bind-iface 0.0.0.0 --bind-port 6776 --install-transport --install-msghub
--install-cmdtools
```

**Note**

The release numbers (N.N.N.N) in the script should be replaced with the actual release numbers.

Command Line Switches

The following table provides information on the command line switches available for the Outboard installation process, including which are required in the script.

The Outboard installation process writes some command line switch values to properties in the [Message Hub properties](#) file, `msghub.props`, and the [Transporter properties](#) file, `transport.props`. The **Outboard Property** column in the following table identifies these properties. For any of those command line switches that are optional, and in fact are not included in the script, the Outboard installation process writes their default value to the appropriate Message Hub or Transporter properties file.

**Note**

- All command line switches are case-sensitive.
- All command line switches are valid for all Windows and Unix platforms, unless noted otherwise.

Name	Description	Default	Required	Outboard Property
<code>--add-start-menu-items</code>	For Windows only: Indicates whether or not you want the installer to add Start-up menu items.	(none)	No	n/a
<code>--bind-iface</code>	Listening IP address of Message Hub for Controller/Message Hub communications.	0.0.0.0	No	<code>core.bind_iface=</code>
<code>--bind-port</code>	Listening port of Message Hub for for Controller/Message Hub communications.	6776	No	<code>core.bind_port=</code>
<code>--install-cmdtools</code>	Installs the Command Line Interface (CLI).	n/a	No	n/a
<code>--install-dir</code>	For Windows only: Root directory for the Opwise user directory structure (for Unix, see <code>--user-home</code>).	<code>c:\opwise</code>	Yes	n/a
<code>--install-msghub</code>	Installs the Message Hub properties file and start-up script. Use only when installing an Agent or if you are including an Agent install with the Controller install.	n/a	No	n/a
<code>--install-transport</code>	Installs the Transporter properties file and start-up script. Use only when installing an Agent or if you are including an Agent install with the Controller install.	n/a	No	n/a

<code>--tmpdir</code>	Alternate directory used during installation for temporary files.	(none)	No	n/a
<code>--transports</code>	Transporter socket list. Separate multiple entries with semicolons (;).	4803@localhost	Yes	<code>network.transports=</code>
<code>--tspport</code>	Port used by the Transporter.	4803	Yes	<code>transport1.port=</code>
<code>--upgrade</code>	Use only when applying maintenance to an Outboard installation, such as from 5.1.0.10 to 5.1.0.12. Specify this command line switch OR one or more of <code>--install-msghub</code> , <code>--install-transport</code> .	n/a	No	n/a
<code>--user</code>	Opwise user name. This is a normal Unix or Windows user ID.	(none)	Yes	n/a
<code>--user-home</code>	For Linux/Unix only: Root directory for the Opwise user directory structure (for Windows, see <code>--install-dir</code>).	<code>/home/opwise</code>	Yes	n/a

Starting the Outboard Components

For information on how to start the Opwise Outboard components that you have just installed, see [Starting-Stopping Opwise Components on AIX](#).

Uninstall the Outboard Components

Perform the following steps to uninstall the Outboard components:

Step 1	Delete the Outboard user account (<code>opwise</code>) and its home directory:
	<pre>userdel -r opwise</pre>
Step 2	Delete the Outboard group (<code>opwise</code>):
	<pre>groupdel opwise</pre>
Step 3	Delete the init scripts for the Transporter and the Message Hub:
	<pre>rm -f /etc/rc.d/rc2.d/?opstransport /etc/rc.d/rc2.d/?opsmgshub</pre>

Step 4 Clean up the /tmp directory:

```
rm -f /tmp/GRD* /tmp/4803
```

Installing the Opwise Outboard on HP-UX

- Before Installing the Outboard
- Installing the Outboard
 - Installation Command
 - Sample Install Script
 - Command Line Switches
- Starting the Outboard Components
- Uninstall the Outboard Components



Note

This page contains installation instructions specific to each supported version of HP-UX:

- HP-UX Itanium (ia64)
- HP-UX PA_RISC (hppa)

Before Installing the Outboard

The following table identifies procedures that you must perform and information that you must have on hand before you install the Outboard:

1	<p>These instructions assume you already have:</p> <ul style="list-style-type: none"> • Installed the prerequisite software. • Downloaded the Opwise Outboard package. • Installed the Opwise Controller.
2	<p>In order to install the Outboard components - Message Hub, Transporter, and Command Line Interface (CLI) - you will need the following information:</p> <ul style="list-style-type: none"> • Opwise user name • Root directory name for the Opwise software • Transporter socket list • Port used by Transporter
3	<p>Log in as the root user and make sure that the downloaded Opwise Outboard package has the executable bit set. If it does not, set it with the following command:</p> <ul style="list-style-type: none"> • HP-UX Itanium <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <pre># chmod +x opwise-outboard-hp-ux-ia64-N.N.N.N.sh</pre> </div> • HP-UX PA-RISC <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <pre># chmod +x opwise-outboard-hp-ux-hppa-N.N.N.N.sh</pre> </div>

Installing the Outboard

This section describes the installation command, script, and command line switches used to provide a complete installation of all Opwise Outboard features.

Installation Command

Issue the following command to run the install script, which installs the Opwise Outboard components in a UNIX environment:

HP-UX Itanium	<pre># ./opwise-outboard-hp-ux-ia64-N.N.N.N.sh command line switches [command line switches]</pre>
HP-UX PA-RISC	<pre># ./opwise-outboard-hp-ux-hppa-N.N.N.N.sh command line switches [command line switches]</pre>

You must include required command line switches for specific Transporter and user information; you also can include optional command line switches (see [Command Line Switches](#), below). If a required switch is missing from the command line, you will be prompted to enter it during the installation process.

We recommend copying the Sample Install Script, below, into your command shell and editing the `command line switches` with your site-specific information.

Sample Install Script

The following are sample install scripts for installing Opwise Outboard for HP-UX:

HP-UX Itanium	<pre>./opwise-outboard-hp-ux-ia64-N.N.N.N.sh --user opwise --user-home /home/opwise --transports 4803@127.0.0.1 --tspport 4803 --install-transport --install-msghub --install-cmdtools --bind-iface 0.0.0.0 --bind-port 6776</pre>
HP-UX PA-RISC	<pre>./opwise-outboard-hp-ux-hppa-N.N.N.N.sh --user opwise --user-home /home/opwise --transports 4803@127.0.0.1 --tspport 4803 --install-transport --install-msghub --install-cmdtools --bind-iface 0.0.0.0 --bind-port 6776</pre>



Note

The release numbers (N.N.N.N) in the script should be replaced with the actual release numbers.

Command Line Switches

The following table provides information on the command line switches available for the Outboard installation process, including which are required in the script.

The Outboard installation process writes some command line switch values to properties in the [Message Hub properties](#) file, `msghub.props`, and the [Transporter properties](#) file, `transport.props`. The **Outboard Property** column in the following table identifies these properties. For any of those command line switches that are optional, and in fact are not included in the script, the Outboard installation process writes their default value to the appropriate Message Hub or Transporter properties file.



Note

- All command line switches are case-sensitive.
- All command line switches are valid for all Windows and Unix platforms, unless noted otherwise.

Name	Description	Default	Required	Outboard Property
<code>--add-start-menu-items</code>	For Windows only: Indicates whether or not you want the installer to add Start-up menu items.	(none)	No	n/a
<code>--bind-iface</code>	Listening IP address of Message Hub for Controller/Message Hub communications.	0.0.0.0	No	<code>core.bind_iface=</code>
<code>--bind-port</code>	Listening port of Message Hub for Controller/Message Hub communications.	6776	No	<code>core.bind_port=</code>
<code>--install-cmdtools</code>	Installs the Command Line Interface (CLI).	n/a	No	n/a
<code>--install-dir</code>	For Windows only: Root directory for the Opswise user directory structure (for Unix, see <code>--user-home</code>).	<code>c:\opswise</code>	Yes	n/a
<code>--install-msghub</code>	Installs the Message Hub properties file and start-up script. Use only when installing an Agent or if you are including an Agent install with the Controller install.	n/a	No	n/a
<code>--install-transport</code>	Installs the Transporter properties file and start-up script. Use only when installing an Agent or if you are including an Agent install with the Controller install.	n/a	No	n/a
<code>--tmpdir</code>	Alternate directory used during installation for temporary files.	(none)	No	n/a
<code>--transports</code>	Transporter socket list. Separate multiple entries with semicolons (;).	4803@localhost	Yes	<code>network.transports=</code>
<code>--tsport</code>	Port used by the Transporter.	4803	Yes	<code>transport1.port=</code>
<code>--upgrade</code>	Use only when applying maintenance to an Outboard installation, such as from 5.1.0.10 to 5.1.0.12. Specify this command line switch OR one or more of <code>--install-msghub</code> , <code>--install-transport</code> .	n/a	No	n/a
<code>--user</code>	Opswise user name. This is a normal Unix or Windows user ID.	(none)	Yes	n/a
<code>--user-home</code>	For Linux/Unix only: Root directory for the Opswise user directory structure (for Windows, see <code>--install-dir</code>).	<code>/home/opswise</code>	Yes	n/a

Starting the Outboard Components

For information on how to start the Opswise Outboard components that you have just installed, see [Starting-Stopping Opswise Components on HP-UX](#).

Uninstall the Outboard Components

Perform the following steps to uninstall the Outboard components:

Step 1	Delete the Outboard user account (<code>opswise</code>) and its home directory: <pre>userdel -r opswise</pre>
Step 2	Delete the Outboard group (<code>opswise</code>): <pre>groupdel opswise</pre>
Step 3	Delete the init scripts for the Transporter and the Message Hub: <pre>rm -f /sbin/init.d/opstransport /sbin/init.d/opmsgshub</pre>
Step 4	Clean up the <code>/tmp</code> directory: <pre>rm -f /tmp/GRD* /tmp/4803</pre>

Installing the Opwise Outboard on Linux

- [Before Installing the Outboard](#)
- [Installing the Outboard](#)
 - [Installation Command](#)
 - [Sample Install Script](#)
 - [Command Line Switches](#)
- [Starting the Outboard Components](#)
- [Uninstall the Outboard Components](#)



Note

This page contains installation instructions specific to each supported version of Linux:

- [Linux x64 \(x86_64\)](#)
- [Linux x86 \(i686\)](#)
- [Linux for System z \(s390\)](#)

Before Installing the Outboard

The following table identifies procedures that you must perform and information that you must have on hand before you install the Outboard:

1	<p>These instructions assume you already have:</p> <ul style="list-style-type: none"> • Installed the prerequisite software. • Downloaded the Opwise Outboard package. • Installed the Opwise Controller.
2	<p>In order to install the Outboard components - Message Hub, Transporter, and Command Line Interface (CLI) - you will need the following information:</p> <ul style="list-style-type: none"> • Opwise user name • Root directory name for the Opwise software • Transporter socket list • Port used by Transporter

3 Log in as the root user and make sure that the downloaded Opwise Outboard package has the executable bit set. If it does not, set it with the following command:

- Linux x64

```
# chmod \+x opwise-outboard-linux-x86_64-N.N.N.N.sh
```

- Linux x86

```
# chmod \+x opwise-outboard-linux-i686-N.N.N.N.sh
```

- Linux for System z

```
# chmod \+x opwise-outboard-linux-s390-N.N.N.N.sh
```

Installing the Outboard

This section describes the installation command, script, and command line switches used to provide a complete installation of all Opwise Outboard features.

Installation Command

Issue the following command to run the install script, which installs the Opwise Outboard components in a UNIX environment:

Linux x64	<pre># ./opwise-outboard-linux-x86_64-N.N.N.N.sh [installer options]</pre>
Linux x86	<pre># ./opwise-outboard-linux-i686-N.N.N.N.sh [installer options]</pre>
Linux for System z	<pre># ./opwise-outboard-linux-s390-N.N.N.N.sh [installer options]</pre>

You must include required command line switches for specific Transporter and user information; you also can include optional command line switches (see [Command Line Switches](#), below). If a required switch is missing from the command line, you will be prompted to enter it during the installation process.

We recommend copying the Sample Install Script, below, into your command shell and editing the [command line switches](#) with your site-specific information.

Sample Install Script

The following are sample install scripts for installing Opwise Outboard for Linux:

Linux x64	<pre>./opswise-outboard-linux-x86_64-N.N.N.N.sh --user opswise --user-home /home/opswise --transports 4803@127.0.0.1 --tspport 4803 --install-transport --install-msghub --install-cmdtools</pre>
Linux x86	<pre>./opswise-outboard-linux-i686-N.N.N.N.sh --user opswise --user-home /home/opswise --transports 4803@127.0.0.1 --tspport 4803 --install-transport --install-msghub --install-cmdtools</pre>
Linux for System z	<pre>./opswise-outboard-linux-s390-N.N.N.N.sh --user opswise --user-home /home/opswise --transports 4803@127.0.0.1 --tspport 4803 --install-transport --install-msghub --install-cmdtools</pre>

**Note**

The release numbers (N.N.N.N) in the script should be replaced with the actual release numbers.

Command Line Switches

The following table provides information on the command line switches available for the Outboard installation process, including which are required in the script.

The Outboard installation process writes some command line switch values to properties in the [Message Hub properties](#) file, `msghub.props`, and the [Transporter properties](#) file, `transport.props`. The **Outboard Property** column in the following table identifies these properties. For any of those command line switches that are optional, and in fact are not included in the script, the Outboard installation process writes their default value to the appropriate Message Hub or Transporter properties file.

**Note**

- All command line switches are case-sensitive.
- All command line switches are valid for all Windows and Unix platforms, unless noted otherwise.

Name	Description	Default	Required	Outboard Property
<pre>--add-start-menu-items</pre>	<p>For Windows only: Indicates whether or not you want the installer to add Start-up menu items.</p>	(none)	No	n/a
<pre>--bind-iface</pre>	Listening IP address of Message Hub for Controller/Message Hub communications.	0.0.0.0	No	core.bind_iface=
<pre>--bind-port</pre>	Listening port of Message Hub for for Controller/Message Hub communications.	6776	No	core.bind_port=

<code>--install-cmdtools</code>	Installs the Command Line Interface (CLI).	n/a	No	n/a
<code>--install-dir</code>	For Windows only: Root directory for the Opwise user directory structure (for Unix, see <code>--user-home</code>).	<code>c:\opwise</code>	Yes	n/a
<code>--install-msghub</code>	Installs the Message Hub properties file and start-up script. Use only when installing an Agent or if you are including an Agent install with the Controller install.	n/a	No	n/a
<code>--install-transport</code>	Installs the Transporter properties file and start-up script. Use only when installing an Agent or if you are including an Agent install with the Controller install.	n/a	No	n/a
<code>--tmpdir</code>	Alternate directory used during installation for temporary files.	(none)	No	n/a
<code>--transports</code>	Transporter socket list. Separate multiple entries with semicolons (;).	4803@localhost	Yes	<code>network.transports=</code>
<code>--tsport</code>	Port used by the Transporter.	4803	Yes	<code>transport1.port=</code>
<code>--upgrade</code>	Use only when applying maintenance to an Outboard installation, such as from 5.1.0.10 to 5.1.0.12. Specify this command line switch OR one or more of <code>--install-msghub</code> , <code>--install-transport</code> .	n/a	No	n/a
<code>--user</code>	Opwise user name. This is a normal Unix or Windows user ID.	(none)	Yes	n/a
<code>--user-home</code>	For Linux/Unix only: Root directory for the Opwise user directory structure (for Windows, see <code>--install-dir</code>).	<code>/home/opwise</code>	Yes	n/a

Starting the Outboard Components

For information on how to start the Opwise Outboard components that you have just installed, see [Starting-Stopping Opwise Components on Linux](#).

Uninstall the Outboard Components

Perform the following steps to uninstall the Outboard components:

Step 1	<p>Delete the Outboard user account (<code>opwise</code>) and its home directory:</p> <pre style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;">userdel -r opwise</pre>
---------------	---

Step 2	Delete the Outboard group (opswise): <pre>groupdel opswise</pre>
Step 3	Delete the <code>init</code> scripts for the Transporter and the Message Hub: <pre>rm -f /etc/init.d/opstransport /etc/init.d/opsmshub</pre>
Step 4	Clean up the <code>/tmp</code> directory: <pre>rm -f /tmp/GRD* /tmp/4803</pre>

Installing the Opwise Outboard on Solaris

- Before Installing the Outboard
- Installing the Outboard
 - Installation Command
 - Sample Install Script
 - Command Line Switches
- Starting the Outboard Components
- Uninstall the Outboard Components



Note

This page contains installation instructions specific to each supported version of Solaris:

- Solaris Intel (i386)
- Solaris SPARC (sparc)

Before Installing the Outboard

The following table identifies procedures that you must perform and information that you must have on hand before you install the Outboard:

1	<p>These instructions assume you already have:</p> <ul style="list-style-type: none"> • Installed the prerequisite software. • Downloaded the Opwise Outboard package. • Installed the Opwise Controller.
3	<p>In order to install the Outboard components - Message Hub, Transporter, and Command Line Interface (CLI) - you will need the following information:</p> <ul style="list-style-type: none"> • Opwise user name • Root directory name for the Opwise software • Transporter socket list • Port used by Transporter
2	<p>Log in as the root user and make sure that the downloaded Opwise Outboard package has the executable bit set. If it does not, set it with the following command:</p> <ul style="list-style-type: none"> • Solaris Intel <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre># chmod +x opwise-outboard-SunOS-i386-N.N.N.N.sh</pre> </div> • Solaris SPARC <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre># chmod +x opwise-outboard-SunOS-sparc-N.N.N.N.sh</pre> </div>

Installing the Outboard

This section describes the installation command, script, and command line switches used to provide a complete installation of all Opwise Outboard features.

Installation Command

Issue the following command to run the install script, which installs the Opwise Outboard components in a UNIX environment:

Solaris Intel	<pre># ./opwise-outboard-SunOS-i386-N.N.N-build.NN.sh [installer options]</pre>
Solaris SPARC	<pre># ./opwise-outboard-SunOS-sparc-N.N.N-build.NN.sh [installer options]</pre>

You must include required command line switches for specific Transporter and user information; you also can include optional command line switches (see [Command Line Switches](#), below). If a required switch is missing from the command line, you will be prompted to enter it during the installation process.

We recommend copying the Sample Install Script, below, into your command shell and editing the [command line switches](#) with your site-specific information.

Sample Install Script

The following are sample install scripts for installing Opwise Outboard for Solaris:

Solaris Intel	<pre>./opwise-outboard-SunOS-i386-N.N.N.N.sh --user opwise --user-home /export/home/opwise --transports 4803@127.0.0.1 --tspport 4803 --bind-iface 0.0.0.0 --bind-port 6776 --install-transport --install-msghub --install-cmdtools</pre>
Solaris SPARC	<pre>./opwise-outboard-SunOS-sparc-N.N.N.N.sh --user opwise --user-home /export/home/opwise --transports 4803@127.0.0.1 --tspport 4803 --bind-iface 0.0.0.0 --bind-port 6776 --install-transport --install-msghub --install-cmdtools</pre>



Note

The release numbers (N.N.N.N) in the script should be replaced with the actual release numbers.

Command Line Switches

The following table provides information on the command line switches available for the Outboard installation process, including which are required in the script.

The Outboard installation process writes some command line switch values to properties in the [Message Hub properties](#) file, `msghub.props`, and the [Transporter properties](#) file, `transport.props`. The **Outboard Property** column in the following table identifies these properties. For any of those command line switches that are optional, and in fact are not included in the script, the Outboard installation process writes their default value to the appropriate Message Hub or Transporter properties file.



Note

- All command line switches are case-sensitive.
- All command line switches are valid for all Windows and Unix platforms, unless noted otherwise.

Name	Description	Default	Required	Outboard Property
<code>--add-start-menu-items</code>	For Windows only: Indicates whether or not you want the installer to add Start-up menu items.	(none)	No	n/a
<code>--bind-iface</code>	Listening IP address of Message Hub for Controller/Message Hub communications.	0.0.0.0	No	<code>core.bind_iface=</code>
<code>--bind-port</code>	Listening port of Message Hub for Controller/Message Hub communications.	6776	No	<code>core.bind_port=</code>
<code>--install-cmdtools</code>	Installs the Command Line Interface (CLI).	n/a	No	n/a
<code>--install-dir</code>	For Windows only: Root directory for the Opwise user directory structure (for Unix, see <code>--user-home</code>).	<code>c:\opwise</code>	Yes	n/a
<code>--install-msghub</code>	Installs the Message Hub properties file and start-up script. Use only when installing an Agent or if you are including an Agent install with the Controller install.	n/a	No	n/a
<code>--install-transport</code>	Installs the Transporter properties file and start-up script. Use only when installing an Agent or if you are including an Agent install with the Controller install.	n/a	No	n/a
<code>--tmpdir</code>	Alternate directory used during installation for temporary files.	(none)	No	n/a
<code>--transports</code>	Transporter socket list. Separate multiple entries with semicolons (;).	4803@localhost	Yes	<code>network.transports=</code>
<code>--tsport</code>	Port used by the Transporter.	4803	Yes	<code>transport1.port=</code>
<code>--upgrade</code>	Use only when applying maintenance to an Outboard installation, such as from 5.1.0.10 to 5.1.0.12. Specify this command line switch OR one or more of <code>--install-msghub</code> , <code>--install-transport</code> .	n/a	No	n/a
<code>--user</code>	Opwise user name. This is a normal Unix or Windows user ID.	(none)	Yes	n/a
<code>--user-home</code>	For Linux/Unix only: Root directory for the Opwise user directory structure (for Windows, see <code>--install-dir</code>).	<code>/home/opwise</code>	Yes	n/a

Starting the Outboard Components

For information on how to start the Opswise Outboard components that you have just installed, see [Starting-Stopping Opswise Components on Solaris](#).

Uninstall the Outboard Components

Perform the following steps to uninstall the Outboard components:

Step 1	Delete the Outboard user account (<code>opswise</code>) and its home directory: <pre>userdel -r opswise</pre>
Step 2	Delete the Outboard group (<code>opswise</code>): <pre>groupdel opswise</pre>
Step 3	Delete the <code>init</code> scripts for the Transporter and the Message Hub: <pre>rm -f /etc/init.d/opstransport /etc/init.d/opsmsghub</pre>
Step 4	Clean up the <code>/tmp</code> directory: <pre>rm -f /tmp/GRD* /tmp/4803</pre>

Installing the Opswise Outboard on Windows

Installing the Opswise Outboard on Windows - Overview

- [Before Installing the Outboard](#)
- [Install the Outboard Components](#)

Before Installing the Outboard

The following table identifies procedures that you must perform and information that you must have on hand before you install the Outboard:

1	<p>These instructions assume you already have:</p> <ul style="list-style-type: none"> • Installed the prerequisite software. • Downloaded the Opswise Outboard package. • Installed the Opswise Controller.
2	<p>In order to install the Outboard components - Message Hub, Transporter, and Command Line Interface (CLI) - you will need the following information:</p> <ul style="list-style-type: none"> • Opswise user name • Root directory name for the Opswise software • Transporter socket list • Port used by Transporter
3	<p>Before installing the Outboard, or upgrading an installed Outboard, exit the Windows Services Console. If you do not, the install will fail and you likely will get the following error:</p> <div style="border: 1px solid #0070C0; padding: 10px; margin: 10px 0;"> <pre>'This Service is marked for deletion'</pre> </div> <p>If this occurs, exit the Windows Services application and re-run the install.</p>

Install the Outboard Components

Two methods are available for installing the Opswise Outboard on Windows:

Graphical Interface	This method runs the Windows install wizard and prompts you for the required information.
Command Line Interface	This method allows you to build a command script or manually enter the installation command and switches in a DOS shell.

Installing the Outboard on Windows via the Graphical Interface

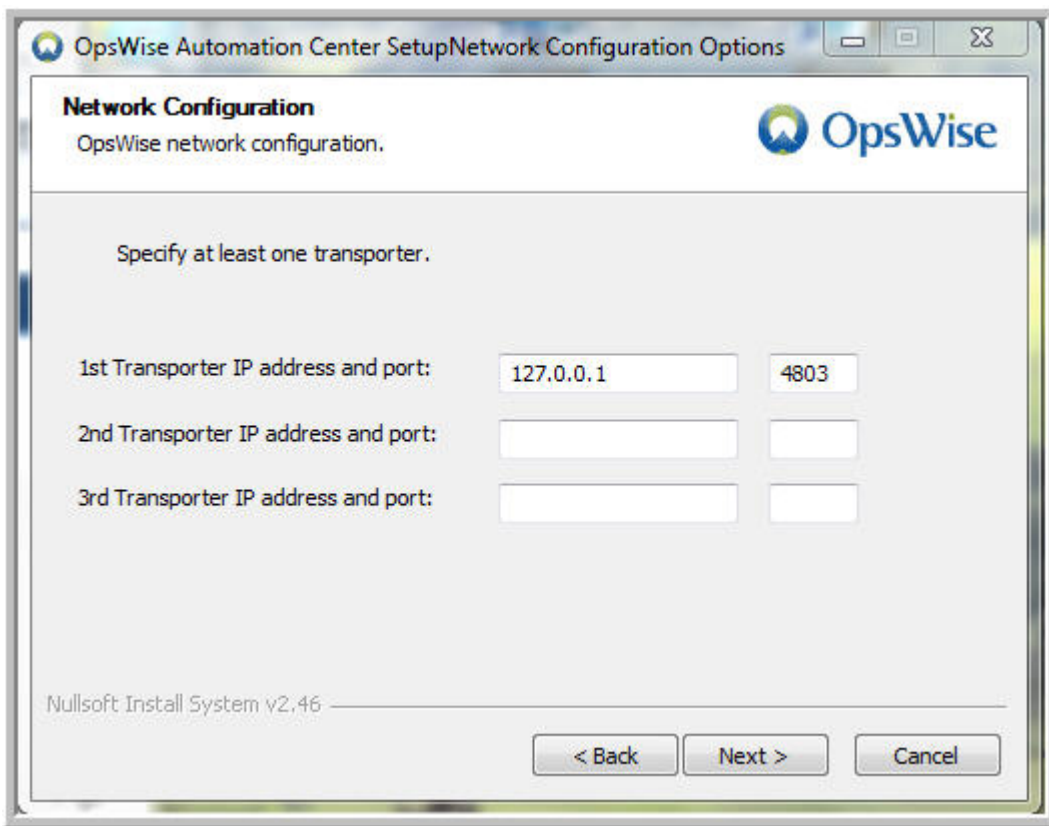
- [Install the Outboard Components](#)
- [Uninstall the Outboard Components](#)

Install the Outboard Components

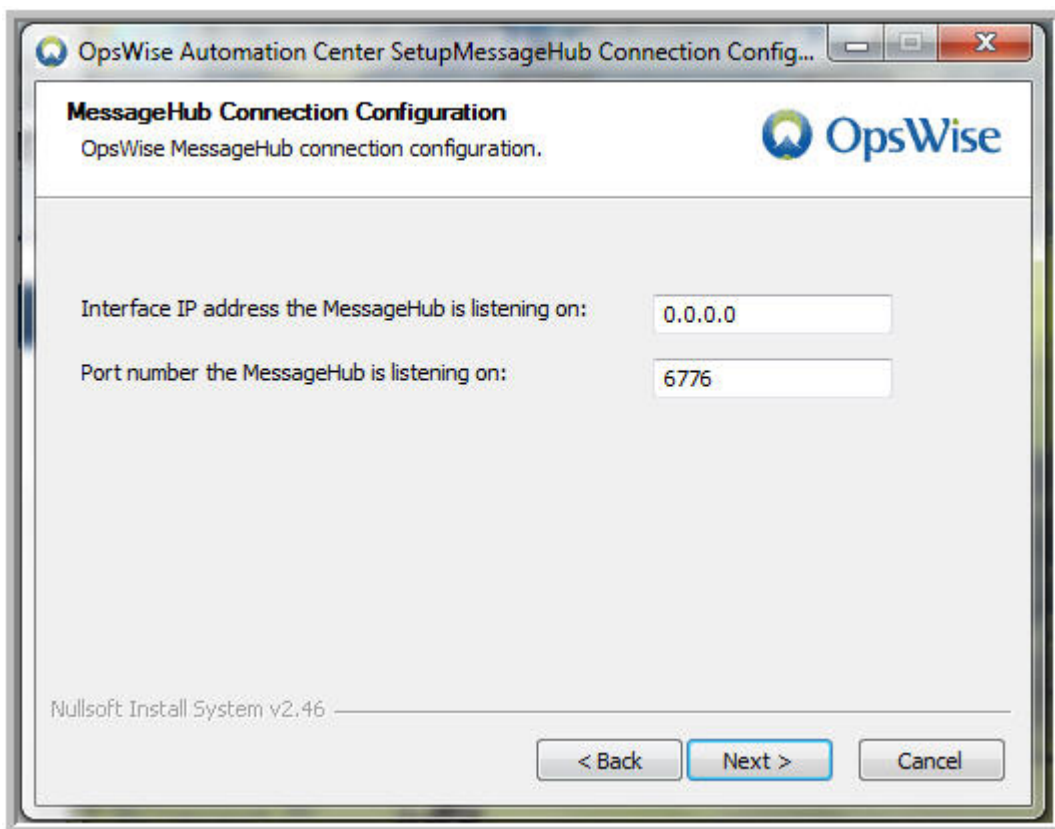
Perform the following steps to install the Windows Outboard components via the Windows graphical interface.

Step 1	In File Explorer, go to the OPSWISE install directory where you saved the downloaded components.
Step 2	<p>Click the .exe file. The file will be similar to the following:</p> <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0; text-align: center;"> <pre>opswise-outboard-win32-N.N.N.N.exe</pre> </div>
Step 3	<p>The Windows graphical interface opens and prompts you to select the options that you want to install. If you already have a Message Hub and Transporter installed on another machine, you do not need to install a duplicate on the local machine.</p> <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> </div>
Step 4	Make your selections and click Next .

Step 5 Specify the install directory and click **Next**. The Network Configuration screen displays.



Step 6 At the minimum, you must specify the machine name where the Transporter resides. Click **Next**. The Message Hub Connection Configuration screen displays.



- Step 7** Type in the IP address and port number where the Message Hub will bind to and click **Next**. The Windows Service Logon Options screen displays.



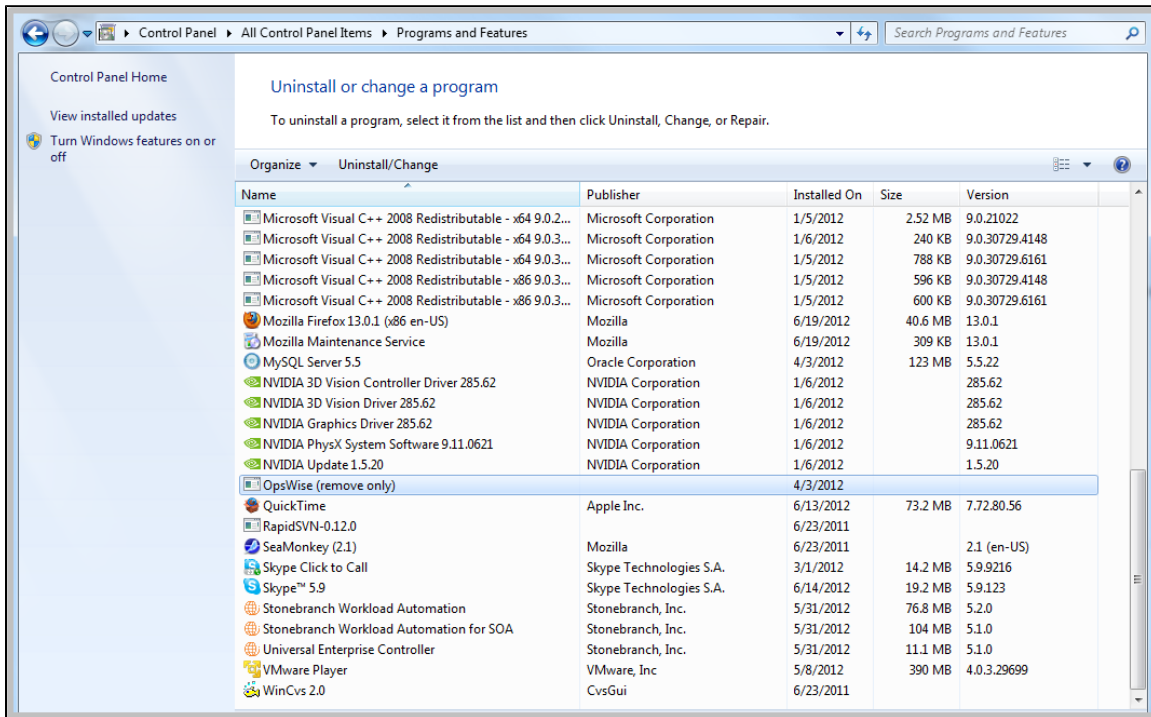
- Step 8** Do not change the default selection, Local System Account, but indicate whether you want Windows services for the Outboard component to start automatically when you start up Windows. Click **Install**, then **Next**.

- Step 9** The installation procedure installs the components you specified.
If you did not specify that the Windows services should be started automatically, see [Starting-Stopping Opswise Components on Windows](#) for instructions on how to start each service.

Uninstall the Outboard Components

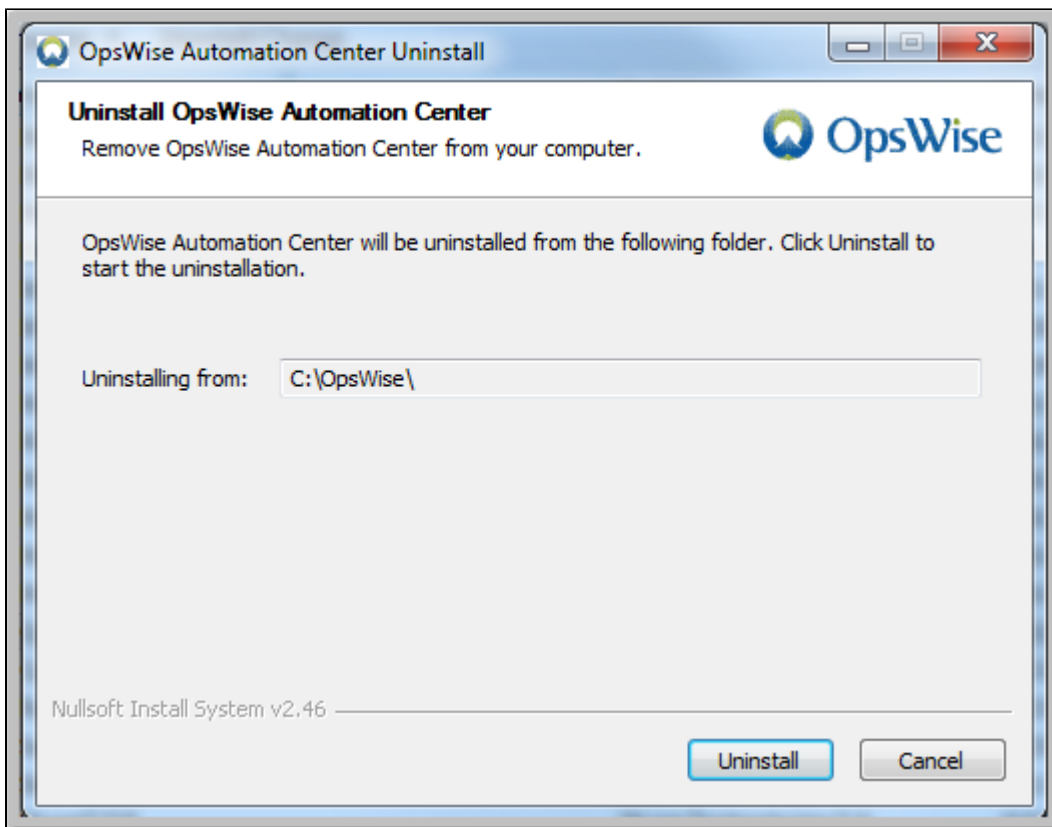
Perform the following steps to uninstall the Windows Outboard components using the Windows graphical interface.

Step 1 On the Windows Control Panel, select Programs and Features. The Programs and Features dialog displays.

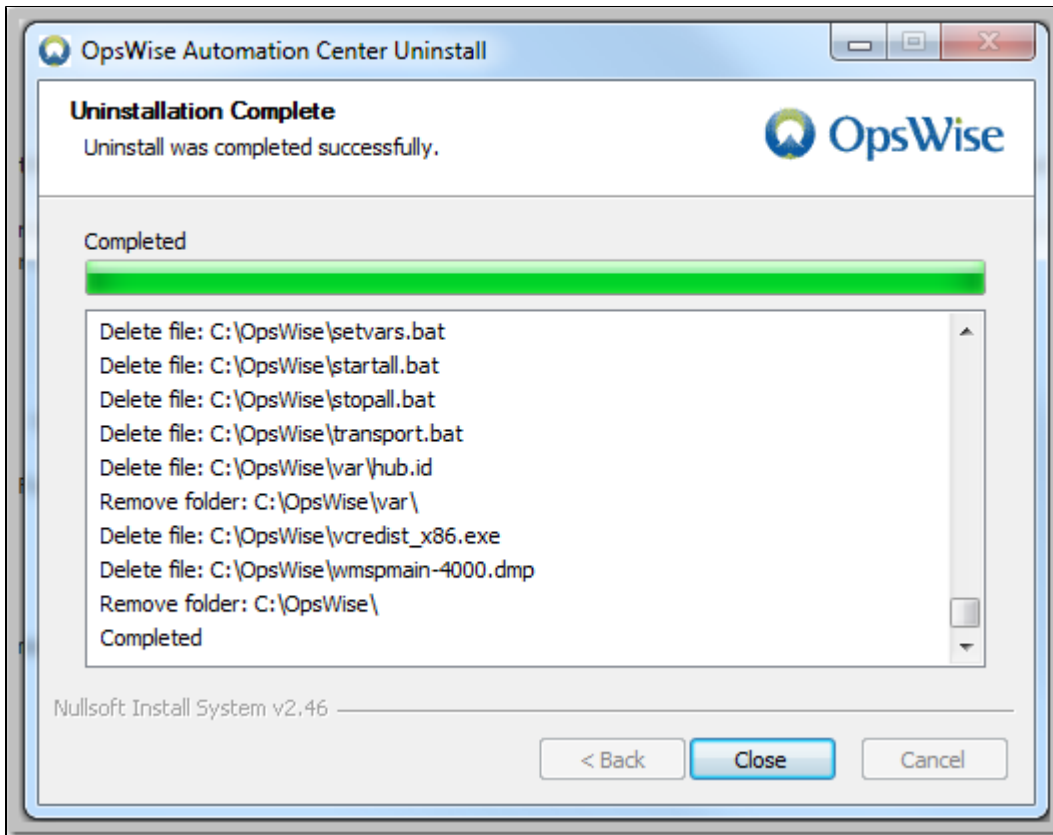


Step 2 Select **OpsWise (remove only)**.

Step 3 Click **Uninstall/Change** at the top of the dialog. The Uninstall OpsWise Automation Center screen displays.



Step 4 Click **Uninstall**. When the components have been uninstalled successfully, the Uninstallation Complete screen displays.



Step 5 Click **Close**.

Installing the Outboard on Windows via the Command Line Interface

- [Installing the Outboard](#)
 - [Installation Command](#)
 - [Sample Install Script](#)
 - [Command Line Switches](#)
- [Viewing the Installation Log](#)
- [Starting the Outboard Components](#)
- [Uninstall the Outboard Components](#)

Installing the Outboard

This section describes the installation command, script, and command line switches used to provide a complete installation of all Opswise Outboard features.

Installation Command

Issue the following command to run the install script, which installs the Opswise Outboard components in a Windows environment:

```
opswise-outboard-win32-N.N.N.N.exe command line switches [command line switches]
```


You must include required command line switches for specific Transporter and user information; you also can include optional command line switches (see [Command Line Switches](#), below). If a required switch is missing from the command line, you will be prompted to enter it during the installation process.

We recommend copying the Sample Install Script, below, into a .bat file and editing the [command line switches](#) with your site-specific information.

Sample Install Script

The following sample install script for installing Opswise Outboard for Windows can be cut and pasted into a .bat file and edited with your site's information.


```
opswise-outboard-win32-N.N.N.N.exe /S --install-dir d:\Opwise --transports 4803@127.0.0.1
--tspport 4803 --install-transport --install-msghub --install-cmdtools
```

 **Note**
The release numbers (N.N.N.N) in the script should be replaced with the actual release numbers.

Command Line Switches

The following table provides information on the command line switches available for the Outboard installation process, including which are required in the script.

The Outboard installation process writes some command line switch values to properties in the [Message Hub properties](#) file, `msghub.props`, and the [Transporter properties](#) file, `transport.props`. The **Outboard Property** column in the following table identifies these properties. For any of those command line switches that are optional, and in fact are not included in the script, the Outboard installation process writes their default value to the appropriate Message Hub or Transporter properties file.

 **Note**

- All command line switches are case-sensitive.
- All command line switches are valid for all Windows and Unix platforms, unless noted otherwise.

Name	Description	Default	Required	Outboard Property
------	-------------	---------	----------	-------------------

<code>--add-start-menu-items</code>	For Windows only: Indicates whether or not you want the installer to add Start-up menu items.	(none)	No	n/a
<code>--bind-iface</code>	Listening IP address of Message Hub for Controller/Message Hub communications.	0.0.0.0	No	<code>core.bind_iface=</code>
<code>--bind-port</code>	Listening port of Message Hub for Controller/Message Hub communications.	6776	No	<code>core.bind_port=</code>
<code>--install-cmdtools</code>	Installs the Command Line Interface (CLI).	n/a	No	n/a
<code>--install-dir</code>	For Windows only: Root directory for the Opswise user directory structure (for Unix, see <code>--user-home</code>).	<code>c:\opswise</code>	Yes	n/a
<code>--install-msghub</code>	Installs the Message Hub properties file and start-up script. Use only when installing an Agent or if you are including an Agent install with the Controller install.	n/a	No	n/a
<code>--install-transport</code>	Installs the Transporter properties file and start-up script. Use only when installing an Agent or if you are including an Agent install with the Controller install.	n/a	No	n/a
<code>--tmpdir</code>	Alternate directory used during installation for temporary files.	(none)	No	n/a
<code>--transports</code>	Transporter socket list. Separate multiple entries with semicolons (;).	4803@localhost	Yes	<code>network.transports=</code>
<code>--tsport</code>	Port used by the Transporter.	4803	Yes	<code>transport1.port=</code>
<code>--upgrade</code>	Use only when applying maintenance to an Outboard installation, such as from 5.1.0.10 to 5.1.0.12. Specify this command line switch OR one or more of <code>--install-msghub</code> , <code>--install-transport</code> .	n/a	No	n/a
<code>--user</code>	Opswise user name. This is a normal Unix or Windows user ID.	(none)	Yes	n/a
<code>--user-home</code>	For Linux/Unix only: Root directory for the Opswise user directory structure (for Windows, see <code>--install-dir</code>).	<code>/home/opswise</code>	Yes	n/a

Viewing the Installation Log

When the installation is complete, check the `installsilent.log` file in the Opswise log directory for any errors.

Starting the Outboard Components

For information on how to start the Opswise Outboard components that you have just installed, see [Starting-Stopping Opswise Components on Windows](#).

Uninstall the Outboard Components

To uninstall the Outboard components, issue the following command:

```
*C:\OpsWise\Uninstall.exe*
```

Installing the Opswise Agent

An Opswise Agent is installed as a Workload Automation 5.1.0 Agents package.

Click any of the following links for platform-specific instructions on installing an Opswise Agent:

- [Windows](#)
- [z/OS](#)
- [Linux/Unix](#)

Verify Outboard and Agent Installation

Perform the following steps to verify that your Agent, Message Hub, and Transporter are installed, running, and communicating with the Controller:

- Step 1** From your browser, open the Opswise main navigation page (where localhost is the name of the machine).
- ```
http://localhost:8080/opswise
```
- Step 2** Log in with a user name and password for this system.
- Step 3** To check for your newly installed Agent, select **Automation Center Resources > All Agents**. You will see a list similar to the example shown below, which includes the Agent that you just installed. Make sure the Agent Status is Active (green circle with a check mark).
- | Agent Name                     | Host Name                  | Type       | Agent Id | Version | Last Heartbeat            | CPU Load | Status | Jobs Run |
|--------------------------------|----------------------------|------------|----------|---------|---------------------------|----------|--------|----------|
| server.opswisesoftware.com - 2 | server.opswisesoftware.com | Linux/Unix | AGNT0002 | HEAD    | 2010-01-28 15:21:44 -0800 | 100      | Active | 15       |
| server.opswisesoftware.com - 3 | server.opswisesoftware.com | Linux/Unix | AGNT0003 | HEAD    | 2010-01-28 15:21:44 -0800 | 100      | Active | 8        |
| server.opswisesoftware.com - 4 | server.opswisesoftware.com | Linux/Unix | AGNT0004 | HEAD    | 2010-01-28 15:21:44 -0800 | 100      | Active | 10       |
| server.opswisesoftware.com - 5 | server.opswisesoftware.com | Linux/Unix | AGNT0005 | HEAD    | 2010-01-28 15:21:44 -0800 | 100      | Active | 14       |
| server.opswisesoftware.com - 6 | server.opswisesoftware.com | Linux/Unix | AGNT0006 | HEAD    | 2010-01-28 15:21:44 -0800 | 100      | Active | 13       |
- Step 4** To check for your newly installed Message Hub and Transporter, select **Automation Center Resources > Connectors**. You will see a list similar to the example shown below, which includes the Message Hub and Transporter that you just installed. Make sure the Message Hub and Transporter Statuses are Active (green circle with a check mark).
- | Connector Name                                | Host Name                  | Type      | Queue | Version | Last Heartbeat            | Status |
|-----------------------------------------------|----------------------------|-----------|-------|---------|---------------------------|--------|
| Msghub - server.opswisesoftware.com - HUB01   | server.opswisesoftware.com | Msghub    | HUB01 | HEAD    | 2010-01-22 14:08:54 -0800 | Active |
| Transport - server.opswisesoftware.com - TP01 | server.opswisesoftware.com | Transport | TP01  | HEAD    | 2010-01-22 14:09:04 -0800 | Active |
- Step 5** For more information about these components, see [Agent and Connector Resources](#).

To get started using Opswise Automation Center and become familiar with its features, we recommend that you spend some time going through the [Tutorials](#).

## Upgrading Opswise Automation Center

## Upgrading Opwise Automation Center - Overview

- [Overview](#)
  - [Upgrading vs. Applying Maintenance](#)
  - [Versioning](#)

### Overview

Upgrading refers to the upgrade of an Opwise Automation Center component from a currently installed Version, Release, or Modification level to a later Version, Release, or Modification level (see [Versioning](#), below).

You can upgrade one or more of the following Opwise Automation Center components:

- [Opwise Controller](#)
- [Opwise Outboard](#)
- [Opwise Agent](#)

For example, you can upgrade Controller 1.7 or 5.1.0.7 to Controller 5.1.1.6.

If you are upgrading the Controller from a pre-5.1 release (1.7, 1.6, or 1.5), you also must upgrade the Outboard to a 5.1 release. The Controller and Outboard must be at the same Release level (for example, 5.1), but they can be at different Modification and Maintenance levels (for example, Controller 5.1.1.6 and Outboard 5.1.0.12).

If you are upgrading the Controller (and Outboard) to 5.1, you also should upgrade your Agent to 5.1. There are features in Controller 5.1 that require a 5.1 Agent.

**Note**

If you are upgrading both the Controller and the Outboard, do not upgrade the Outboard until the Controller upgrade is complete.

However, you can upgrade an Agent before, during, or after the Controller upgrade.

### Upgrading vs. Applying Maintenance

Applying maintenance to an Opwise Automation Center component refers to the increase of its currently installed Maintenance level to a later Maintenance level (for example, applying an Opwise Controller 5.1.1.6 maintenance to an Opwise Controller 5.1.1.2).

The procedures for applying maintenance differ from the procedures for upgrading (see [Applying Opwise Automation Center Maintenance](#)).

### Versioning

Opwise Automation Center components are labeled with four numeric identifiers: Version.Release.Modification.Maintenance.

For example, for Opwise Automation Center Controller 5.1.0.7:

- 5 = Version 5
- 1 = Release 1
- 0 = Modification Level 0
- 7 = Maintenance Level 7

## Upgrading the Opwise Controller

- Overview
  - Supported Upgrade Paths
- Back Up Your Database
- Run an Opwise Export on the Active Controller
  - Make Sure No Records Are Being Processed
  - Decide Which Records to Export
  - Running the Export
- Stop Tomcat and Remove All Controllers
- Stop the Message Hub and Transporter
- Prepare Your Database
- Download the New Controller
- Install the Controller
- Verify the Active Controller Installation
- Run an Opwise Import on the Active Controller
- Check Your Data
- Verify the Passive Controller Installations
- Start the Message Hub and Transporter
- Verify the Upgrade

### Overview

This page tells you how to upgrade Opwise Controller from one Version, Release, or Modification level to another - for example, from Opwise 5.1.0 to Opwise 5.1.1.

The instructions assume that you are running a [High Availability](#) Opwise Automation Center system: a system configured with Active and Passive Controllers (cluster nodes). If you are running a single Controller, disregard the steps for the Passive Controller.



#### Applying Maintenance

If you want to apply maintenance to the Opwise Controller - for example, apply Controller 5.1.1.6 maintenance to a Controller 5.1.1.3 installation - see [Applying Opwise Controller Maintenance](#).

These instructions comprise the following procedures:

|    |                                               |
|----|-----------------------------------------------|
| 1  | Back Up Your Database                         |
| 2  | Run an Opwise Export on the Active Controller |
| 3  | Stop Tomcat and Remove All Controllers        |
| 4  | Stop the Message Hub and Transporter          |
| 5  | Prepare Your Database                         |
| 6  | Download the New Controller                   |
| 7  | Install the Controller                        |
| 8  | Verify the Active Controller Installation     |
| 9  | Run an Opwise Import on the Active Controller |
| 10 | Check Your Data                               |
| 11 | Verify the Passive Controller Installations   |
| 12 | Start the Message Hub and Transporter         |
| 13 | Verify the Upgrade                            |

### Supported Upgrade Paths

You can use these instructions for the supported upgrade paths shown in the following table. For any other upgrade path, consult your



Stonebranch representative.

| Upgrade to... | 1.6.0 | 1.7.0 | 5.1.0 | 5.1.1 |
|---------------|-------|-------|-------|-------|
| From 1.5.0    | ✓     | ✓     | ✓     | ✓     |
| From 1.6.0    |       | ✓     | ✓     | ✓     |
| From 1.7.0    |       |       | ✓     | ✓     |
| From 5.1.0    |       |       |       | ✓     |

If you are upgrading the Controller from a pre-5.1 release (1.7, 1.6, or 1.5), you also must [upgrade the Outboard](#) to a 5.1 release. The Controller and Outboard must be at the same Release level (for example, 5.1), but they can be at different Modification and Maintenance levels (for example, Controller 5.1.1.6 and Outboard 5.1.0.12).

If you are upgrading the Controller (and Outboard) to 5.1, you also should [upgrade your Agent](#) to 5.1. There are features in Controller 5.1 that require a 5.1 Agent.

## Back Up Your Database



### Important

Before upgrading your Controllers, back up your database. The database backup is a fail-safe measure; you will be using the Opwise export/import utility described below to migrate your data.

## Run an Opwise Export on the Active Controller

The Opwise export scripts copy and save the specified records to one or more XML files. The files can then be imported into the upgraded system. For best results, complete the tasks described below before running the export.

For best results, complete these tasks before running the export:

- Make Sure No Records Are Being Processed
- Decide Which Records to Export

### Make Sure No Records Are Being Processed



### WARNING

If the Controller is processing task instances when you launch the export, the results are unpredictable.

Before running the export:

|               |                                                                                                                                                                                                                  |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Log in with <b>ops.admin</b> or a user with administrator privileges.                                                                                                                                            |
| <b>Step 2</b> | Disable all <b>active triggers</b> to make sure no tasks are being processed.                                                                                                                                    |
| <b>Step 3</b> | Check the <b>Activity</b> screen to verify that there are no active task instances. If there are, wait until they complete before you start the export process. If necessary, you can <b>force finish</b> tasks. |

## Decide Which Records to Export

The list of export scripts changed from Opwise 1.7 to Opwise 5.1. Depending on what version you are upgrading from, select the appropriate upgrade script from the following descriptions.

### Exporting Records from Opwise 1.7 or Earlier

The following export scripts are available:

- **opwise\_bulk\_exec\_export.js** - Not recommended for migration. Exports all unfinished activity (task instances in the Activity display).
- **opwise\_bulk\_export.js** - Exports all record definitions and task instance history, which includes all task instances in an end state (cancelled, failed, skipped, finished, success).

## Exporting Records from Opwise 5.1 or Later

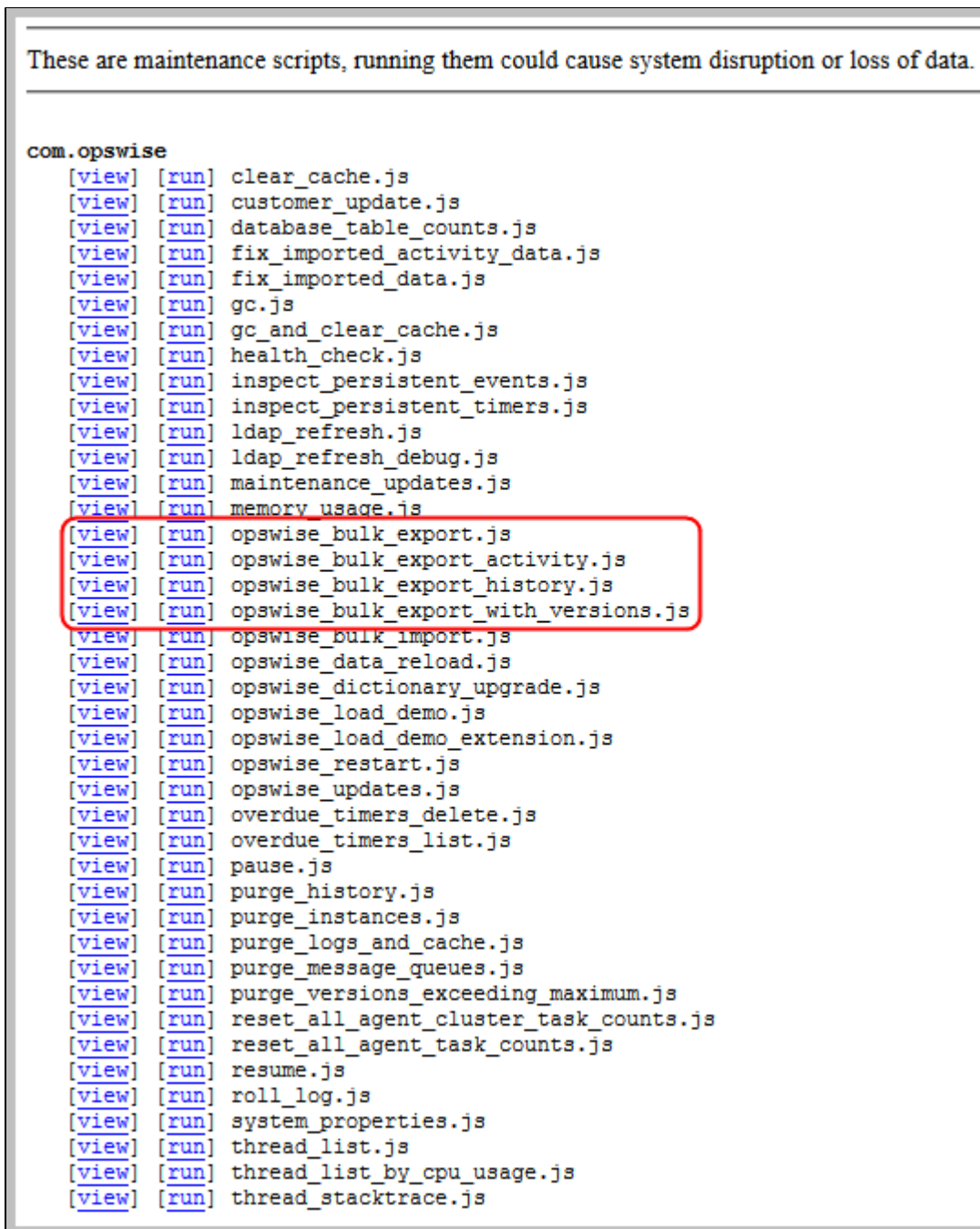
The following export scripts are available:

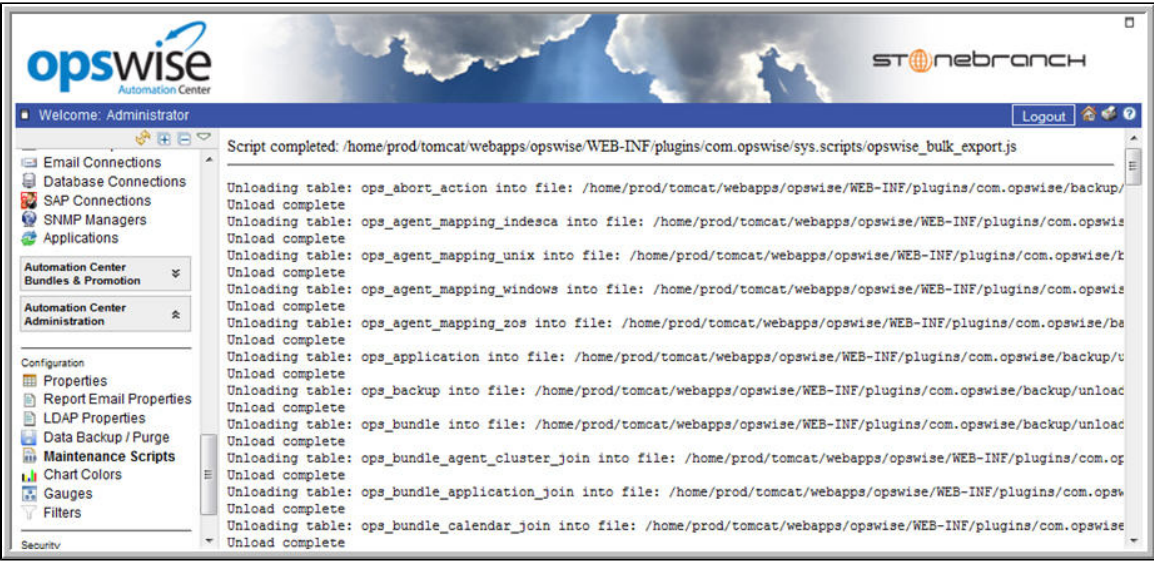
- **opwise\_bulk\_export\_activity.js** - Not recommended for migration. Exports all unfinished activity (task instances in the Activity display).
- **opwise\_bulk\_export.js** - Exports all current record definitions, without versions.
- **opwise\_bulk\_export\_with\_versions.js** - Exports all current records along with older (non-current) versions of record definitions.
- **opwise\_bulk\_export\_history.js** - Exports task instance history, which includes all task instances in an end state (cancelled, failed, skipped, finished, success).

## Running the Export

Perform the following steps to run a bulk export of your data:

- Step 1** From the navigation pane, select **Automation Center Administration > Configuration > Maintenance Scripts**. The image below shows export script options for Opwise Automation Center 5.1.1.



|                                                                                        |                                                                                                                                                     |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 2</b>                                                                          | Select the script you want to run and click <b>Run</b> .                                                                                            |
| <b>Step 3</b>                                                                          | The utility prompts for a confirmation. Click <b>Yes</b> . As your data is exported, the output from the script is written to the screen, as shown. |
|      |                                                                                                                                                     |
| <b>Step 4</b>                                                                          | Look over the output for any error messages. If you see any, copy the output to a file and send it to support@stonebranch.com.                      |
| <b>Step 5</b>                                                                          | Zip or tar the contents of:                                                                                                                         |
| <pre>[tomcat directory]/webapps/opwise/WEB-INF/plugins/com.opwise/backup/unload/</pre> |                                                                                                                                                     |
| <b>Step 6</b>                                                                          | Copy the zip/tar file to a safe place for use after the upgrade process.                                                                            |
| <b>Step 7</b>                                                                          | Copy your <code>glide.properties</code> file to a safe place. You may need to consult this file later. The file is located here:                    |
| <pre>[tomcat directory]/webapps/opwise/WEB-INF/properties</pre>                        |                                                                                                                                                     |
| <b>Step 8</b>                                                                          | Copy your license key from the <a href="#">Opwise Properties</a> screen and store it in a safe place.                                               |
| <b>Step 9</b>                                                                          | Copy the LDAP mapping file to a safe place for use after the upgrade process.                                                                       |
| <pre>[tomcat directory]/webapps/opwise/WEB-INF/properties/users/ldapmap.xml</pre>      |                                                                                                                                                     |

## Stop Tomcat and Remove All Controllers



### Important

Make sure you have copied to a safe location all of the exported files from the [bulk export](#) before continuing here, where you will stop Tomcat and remove the Controller.

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | <p>Stop the Tomcat containers in which all Passive Controllers are deployed:</p> <p><b>Windows</b><br/>Use the services application to stop Tomcat. You also can issue the stop command on a command line:</p> <pre>net stop [name of Tomcat service]</pre> <p><b>UNIX</b><br/>Stop the daemon using the script found in the <code>/etc/init.d</code> directory for Tomcat.</p> <pre>service [name of Tomcat service] stop</pre> <p><b>Windows or UNIX</b><br/>Stop the service using the <code>\$TOMCAT_HOME/bin/shutdown.bat</code> or <code>\$TOMCAT_HOME/bin/shutdown.sh</code> scripts:</p> <ul style="list-style-type: none"> <li>• <b>Windows</b></li> </ul> <pre>cd \$CATALINA_HOME\bin shutdown</pre> <ul style="list-style-type: none"> <li>• <b>Linux/Unix</b></li> </ul> <pre>cd \$CATALINA_HOME/bin ./shutdown</pre> |
| <b>Step 2</b> | Use the Windows Task Manager to confirm that the Tomcat processes where the Passive Controllers are deployed are not running.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Step 3</b> | <p>Back up the Passive Controller deployment directories in any folder other than one under the Tomcat installation.</p> <p>For example, if you deployed the Automation Center <b>war</b> as <b>opwise.war</b>, the following would be your deployment directory:</p> <pre>[tomcat-install]\webapps\opwise</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Step 5</b> | Repeat steps 1 through 3 for the Active Controller.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Step 4</b> | <p>Delete the deployment directory and <b>opwise.war</b> for all Controllers.</p> <p>For example, if you deployed the Controller <b>war</b> as <b>opwise.war</b>, the following would be your deployment directory and <b>opwise.war</b>:</p> <pre>[tomcat-install]\webapps\opwise [tomcat-install]\webapps\opwise.war</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## Stop the Message Hub and Transporter

Stop the Message Hub and Transporter in this order:

|               |                       |
|---------------|-----------------------|
| <b>Step 1</b> | Stop the Message Hub. |
| <b>Step 2</b> | Stop the Transporter. |

For instructions on how to stop the Message Hub and Transporter for your specific platform, see [Starting-Stopping Opwise Components](#).

## Prepare Your Database

Delete or drop your database using the appropriate database admin tool.



### Important

Before dropping your existing database, make sure you have created a backup, as mentioned at the beginning of this procedure.

## Download the New Controller

From the Stonebranch website, download a Controller package from the [Current Product Downloads](#) page (for instructions, see [Downloading Opwise Software](#)).

## Install the Controller

Install the [Opwise Controller](#) for the Active and all Passive deployments.

The Opwise Controller is a Java application running within Apache Tomcat. For this reason, the Controller software and installation procedure is basically the same for all platforms.

## Verify the Active Controller Installation

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | <p>Start Tomcat where the Active Controller is deployed.</p> <p>When the database initialization is complete and Opwise is running, you will see the following (for example) in the log:</p> <pre style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;">2012-09-12-12:53:07:339 INFO [Ops.Cluster.Monitor.0] Server is now Running in Active mode. Previous mode was Passive/Unavailable. 2012-09-12-12:53:07:339 INFO [Ops.Cluster.Monitor.0] Setting server to ACTIVE.</pre> |
| <b>Step 2</b> | <p>Log in to the Active Controller with <code>ops.admin</code> (password is not set). On the Opwise Automation Center Home page, verify that the Overview specifies the correct release.</p>                                                                                                                                                                                                                                                                                            |

## Run an Opwise Import on the Active Controller

In this procedure, you are importing your data that you exported earlier using the Opwise [bulk export](#).

|               |                                                                                                                                                                                                         |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | <p>Unzip/untar the backup file that you created earlier using the Opwise export.</p>                                                                                                                    |
| <b>Step 2</b> | <p>Copy the XML files to the following directory:</p> <pre style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;">\$CATALINA_HOME/webapps/opwise/WEB-INF/plugins/com.opwise/backup/unload</pre> |
| <b>Step 3</b> | <p>From the navigation pane, select <b>Automation Center Administration &gt; Configuration &gt; Maintenance Scripts</b>.</p>                                                                            |
| <b>Step 4</b> | <p>Locate and run the script:</p> <pre style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;">opwise_bulk_import.js</pre>                                                                       |
| <b>Step 5</b> | <p>The utility prompts for a confirmation. Click <b>Yes</b>.</p>                                                                                                                                        |

|               |                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 6</b> | As your data is imported, the output from the script is written to the screen. Look over the output for any error messages. If you see any, copy the output to a file and send it to support@stonebranch.com.                                                                                                                                                                                   |
| <b>Step 7</b> | Run the following script: <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0; width: fit-content;"> <pre>clear_cache.js</pre> </div>                                                                                                                                                                                                                                             |
| <b>Step 8</b> | If you are importing data from a 5.1.0.x Opwise Automation Center, and the data you exported using the Opwise <a href="#">bulk export</a> included Activity data ( <a href="#">opwise_bulk_export_activity.js</a> in version 5.1.0.x or <a href="#">opwise_bulk_exec_export.js</a> in version 1.7 or earlier), then you also must run the <a href="#">fix_imported_activity_data.js</a> script. |

## Check Your Data

At this point, your previous definitions, users and passwords have all been restored. Log out and in again, and review your records to make sure all your previous definitions, users, and passwords have been restored successfully.

## Verify the Passive Controller Installations

|               |                                                                                                                                                                                                          |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Start Tomcat where each Passive Controller is deployed.                                                                                                                                                  |
| <b>Step 2</b> | Log in to the Passive Controller with <code>ops.admin</code> or a user with equivalent authorization. On the Opwise Automation Center Home page, verify that the Overview specifies the correct release. |

## Start the Message Hub and Transporter

Start the Message Hub and Transporter in this order:

|               |                        |
|---------------|------------------------|
| <b>Step 1</b> | Start the Message Hub. |
| <b>Step 2</b> | Start the Transporter. |

The start/stop procedure for the Opwise components may differ depending on your platform. For instructions, see [Starting-Stopping Opwise Components](#) and select your platform.

## Verify the Upgrade

Verify that your Agent and Outboard components are communicating with the Active Controller (see [Verify Outboard and Agent Installation](#) for instructions).

## Upgrading the Opwise Outboard

- [Upgrading the Opwise Outboard](#)
  - [Supported Upgrade Paths](#)
- [Upgrade Procedure](#)

## Upgrading the Opwise Outboard

This page tells you how to upgrade the Opwise Outboard - Message Hub, Transporter, and Command Line Interface (CLI) - from a pre-5.1.0 release of Opwise Outboard to Opwise Outboard 5.1.0.



**Note**

If you are upgrading both the Controller and the Outboard, do not upgrade the Outboard until the [Controller upgrade](#) is complete.

### Supported Upgrade Paths

You can use these instructions for the supported upgrade paths shown in the following table. For any other upgrade path, consult your Stonebranch representative.

| Upgrade to... | 1.6.0 | 1.7.0 | 5.1.0 |
|---------------|-------|-------|-------|
| From 1.5.0    | ✔     | ✔     | ✔     |
| From 1.6.0    |       | ✔     | ✔     |
| From 1.7.0    |       |       | ✔     |

### Upgrade Procedure



**Note**

You do not have to remove the pre-5.1.0 release of the Opwise Outboard to upgrade to the 5.1.0 release.

|               |                                                                                                                                                                                                                                                                                                                                        |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | From the Stonebranch Inc. website, download the Opwise Outboard file appropriate for your platform (for instructions, see <a href="#">Downloading Opwise Software</a> ).                                                                                                                                                               |
| <b>Step 2</b> | <p>Stop the Outboard components in this sequence:</p> <ol style="list-style-type: none"> <li>1. Stop the Message Hub process.</li> <li>2. Stop the Transporter process.</li> </ol> <p>For instructions on how to start/stop Opwise components for your specific platform, see <a href="#">Starting-Stopping Opwise Components</a>.</p> |
| <b>Step 3</b> | Install the Opwise 5.1.0 Outboard. The software and instructions differ depending on your platform (see <a href="#">Installing the Opwise Outboard</a> and select your platform).                                                                                                                                                      |
| <b>Step 4</b> | <p>Start the Outboard components in this sequence:</p> <ol style="list-style-type: none"> <li>1. Start the Message Hub process.</li> <li>2. Start the Transporter process.</li> </ol>                                                                                                                                                  |
| <b>Step 5</b> | Verify that the Outboard components are installed, running, and communicating with the Opwise Controller server (see <a href="#">Verify Outboard and Agent Installation</a> ).                                                                                                                                                         |

# Upgrading the Opwise Agent

## Upgrading the Agent

This page tells you how to upgrade an Agent from a pre-5.1.0 release to 5.1.0.

If you are upgrading from Opwise 1.7, 1.6, or 1.5 to Opwise 5.1 or later, you will be converting from the old Opwise agent software to the new Opwise Agent software.


You do not have to remove the pre-5.1.0 release of the Agent to upgrade to the 5.1.0 release.

## Supported Upgrade Paths

You can use these instructions for the supported upgrade paths shown in the following table. For any other upgrade path, consult your Stonebranch representative.

| Upgrade to... | 1.6.0 | 1.7.0 | 5.1.0 |
|---------------|-------|-------|-------|
| From 1.5.0    | ✓     | ✓     | ✓     |
| From 1.6.0    |       | ✓     | ✓     |
| From 1.7.0    |       |       | ✓     |

## Upgrade Procedure

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | From the Stonebranch Inc. website, download the Workload Automation 5.1.0 Agents file that is appropriate for your platform (for instructions, see <a href="#">Downloading Opwise Software</a> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Step 2</b> | Stop all Agent processes (required only for Agents that you are updating). For instructions on how to stop the Agent on a specific platform, see <a href="#">Starting-Stopping Opwise Components</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Step 3</b> | <p>Install the Agent. The installation instructions differ for each platform (see <a href="#">Installing the Opwise Agent</a> and select your platform).</p> <p>If you are upgrading from Opwise 1.7, 1.6, or 1.5 to Opwise 5.1 or later, you will be converting from the old Opwise agent software to the new Opwise Universal Automation Center Agent (UAG) software.</p> <p>For Linux/Unix and Windows agents, the agent installation command parameters include the option <code>CONVERT_OPSAGENT=yes</code>. When you specify this option, the installation process invokes a script named <code>opsmerge.sh</code> (Linux/Unix) or <code>opsmerge.vbs</code> (Windows). This script stops the agent and converts the agent properties (<code>agent.props</code>) into the new agent properties file, <code>uags.conf</code>. The script also performs several other tasks needed for the conversion.</p> <p>For details, see <a href="#">Migrating an Opwise Agent to UAG for Workload Automation 5 for UNIX</a> and <a href="#">Migrating an Opwise Agent to UAG for Workload Automation 5 for Windows</a>.</p> <div style="background-color: #ffffcc; padding: 10px; margin-top: 10px;"> <p> <b>Note</b><br/>You cannot upgrade a z/OS agent from Opwise 1.7, 1.6, or 1.5 to Opwise 5.1 or later. To use the new Opwise Universal Automation Center Agent (UAG) software, you must install a <a href="#">Workload Automation 5 for z/OS</a> package, which contains UAG.</p> </div> |
| <b>Step 4</b> | <p>If you are installing the Agent on AIX or Linux, you must review and perform PAM customization:</p> <ul style="list-style-type: none"> <li>• <a href="#">AIX PAM Customization</a></li> <li>• <a href="#">Linux PAM Customization</a></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Step 5</b> | Start the Agent. The start/stop procedure may differ depending on your platform (see <a href="#">Starting-Stopping Opwise Components</a> and select your platform).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Step 6</b> | Verify that the Agent is installed, running, and communicating with the Opwise Controller server (see <a href="#">Verify Outboard and Agent Installation</a> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |





## Applying Opwise Automation Center Maintenance

## Applying Opswise Automation Center Maintenance - Overview

- Applying Opswise Automation Center Maintenance
  - Applying Maintenance vs. Upgrading
  - Versioning

### Applying Opswise Automation Center Maintenance

Applying maintenance to a Opswise Automation Center component refers to the increase from its currently installed Maintenance level to a later Maintenance level (see [Versioning](#), below).

You can apply maintenance to one or more of the following Opswise Automation Center components:

- [Opswise Controller](#)
- [Opswise Outboard](#)
- [Opswise Agent](#)

For example, you can apply maintenance from Controller 5.1.1.2 to Controller 5.1.1.6.

The Controller, Outboard, and Agent can be at different Maintenance levels (and Modification levels) of the same Release level (for example, Controller 5.1.1.6, Outboard 5.1.0.12, and Agent 5.1.0.10).

### Applying Maintenance vs. Upgrading

Upgrading an Opswise Automation Center component refers to the increase from its currently installed Version, Release, or Modification level to a later Version, Release, or Modification level (for example, upgrading a Controller 5.1.0.7 to a Controller 5.1.1.6).

The procedures for upgrading differ from the procedures for applying maintenance (see [Upgrading Opswise Automation Center](#)).

### Versioning

Opswise Automation Center components are labeled with four numeric identifiers: Version.Release.Modification.Maintenance.

For example, for Opswise Automation Center Controller 5.1.0.7:

- 5 = Version 5
- 1 = Release 1
- 0 = Modification Level 0
- 7 = Maintenance Level 7

## Applying Opwise Controller Maintenance

### Opwise Controller Maintenance

To apply maintenance to the currently installed release of Opwise Controller:

|               |                                                                                                                                                                                            |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | From the Stonebranch website, download the Opwise Controller 5.1.1 package from the <a href="#">Maintenance</a> page (for instructions, see <a href="#">Downloading Opwise Software</a> ). |
| <b>Step 2</b> | Follow the instructions in the README file for your platform; README files for Windows and UNIX are included in the package.                                                               |
| <b>Step 3</b> | Verify that your Agent and Outboard components are communicating with the Opwise Controller server. See <a href="#">Verify Outboard and Agent Installation</a> for instructions.           |

### Paused Mode

After you apply maintenance and restart the Opwise Controller instance, it could - depending on the Opwise Controller release - enter into Paused mode if you did not execute the [maintenance\\_updates.js](#) script during the maintenance procedure, as specified in the README file.

If the Controller has entered Paused mode, the Overview widget on the Opwise Automation Center [Home Page](#) will display the following information in the **Node** field:

```
hostname:8080-opwise [Mode: (--PAUSED FOR MAINTENANCE--)] - Uptime: mm Minutes ss Seconds
```

The Controller instance will remain paused until execution of [maintenance\\_updates.js](#) has completed.

## Applying Opwise Outboard Maintenance

### Applying Opwise Outboard Maintenance

To apply maintenance to an Opwise Outboard 5.1.0.x installation:

|               |                                                                                                                                                                                                                                                                                                                         |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | From the Stonebranch Inc. website, download the Opwise Automation Center Outboard 5.1.0 file that is appropriate for your platform from the <a href="#">Current Product Downloads</a> page (for instructions, see <a href="#">Downloading Opwise Software</a> ).                                                        |
| <b>Step 2</b> | <p>Stop the Outboard components in this sequence:</p> <ol style="list-style-type: none"><li>1. Stop the Message Hub.</li><li>2. Stop the Transporter.</li></ol> <p>For instructions on how to start and stop Opwise components for your specific platform, see <a href="#">Starting-Stopping Opwise Components</a>.</p> |
| <b>Step 3</b> | Install the Outboard using the Upgrade ( <code>--upgrade</code> ) command option (see <a href="#">Installing the Opwise Outboard</a> for your platform for information on how to apply maintenance to your currently installed Opwise Outboard by using this option).                                                   |
| <b>Step 4</b> | <p>Start the Outboard components in this sequence:</p> <ol style="list-style-type: none"><li>1. Start the Message Hub.</li><li>2. Start the Transporter.</li></ol>                                                                                                                                                      |
| <b>Step 5</b> | Verify that the Outboard components are communicating with the Opwise Controller server. See <a href="#">Verify Outboard and Agent Installation</a> for instructions.                                                                                                                                                   |

## Applying Opwise Agent Maintenance

### Applying Maintenance for Linux/Unix and Windows

To apply maintenance to any Opwise Agent for Linux/Unix or Windows:

|               |                                                                                                                                                                                                                                                           |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | From the Stonebranch Inc. website, download the Workload Automation 5.1.0 Agents file that is appropriate for your platform from the <a href="#">Current Product Downloads</a> page (for instructions, see <a href="#">Downloading Opwise Software</a> ). |
| <b>Step 2</b> | Stop all Agent processes (required only for Agents to which you are applying maintenance). For instructions on how to stop the Agent on a specific platform, see <a href="#">Starting-Stopping Opwise Components</a> .                                    |
| <b>Step 3</b> | Install the Agent. The installation instructions differ for each platform (see <a href="#">Installing the Opwise Agent</a> and select your platform).                                                                                                     |
| <b>Step 4</b> | Verify that the Agent is communicating with the Opwise Controller server. See <a href="#">Verify Outboard and Agent Installation</a> for instructions.                                                                                                    |

### Applying Maintenance for z/OS

To apply maintenance to any Opwise Agent for z/OS:

|               |                                                                                                                                                                                                                        |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | From the Stonebranch Inc. website, download the <b>z/OS (Express/OS) PTFs</b> file from the <a href="#">Maintenance</a> page (for instructions, see <a href="#">Downloading Opwise Software</a> ).                     |
| <b>Step 2</b> | Stop all Agent processes (required only for Agents to which you are applying maintenance). For instructions on how to stop the Agent on a specific platform, see <a href="#">Starting-Stopping Opwise Components</a> . |
| <b>Step 3</b> | Apply the maintenance to the Agent using the instructions in the README file that is included with <b>z/OS (Express/OS) PTFs</b> .                                                                                     |
| <b>Step 4</b> | Verify that the Agent is communicating with the Opwise Controller server. See <a href="#">Verify Outboard and Agent Installation</a> for instructions.                                                                 |

## Starting-Stopping Opwise Components

## Starting-Stopping Opswise Components - Overview

These pages provide platform-specific instructions for starting and stopping Opswise components:

- [Starting-Stopping the Opswise Bundled Controller on AIX](#)
- [Starting-Stopping Opswise Components on AIX](#)
- [Starting-Stopping Opswise Components on HP-UX](#)
- [Starting-Stopping Opswise Components on Linux](#)
- [Starting-Stopping Opswise Components on Solaris](#)
- [Starting-Stopping Opswise Components on Windows](#)
- [Starting-Stopping Opswise Components on z/OS](#)



## Starting-Stopping the Opswise Bundled Controller on AIX

### Starting the Opswise Bundled Controller

To start the Bundled Controller, execute the following script:

```
/etc/rc.d/rc2.d/Sopswise start
```

### Stopping the Opswise Bundled Controller

To stop the Bundled Controller, execute the following script:

```
/etc/rc.d/rc2.d/Kopswise stop
```

## Starting-Stopping Opwise Components on AIX

- Transporter
- Message Hub
- Agent
  - Opwise 5.1 and Later
  - Opwise 1.7 and Earlier



### IMPORTANT

For all start/stop procedures on this page, enter the commands as **ROOT**.

### Transporter

To start or stop the Transporter (all Opwise versions), use the following commands:

```
/etc/rc.d/rc2.d/Sopstransport start
/etc/rc.d/rc2.d/Kopstransport stop
```

### Message Hub

To start or stop the Message Hub (all Opwise versions), use the following commands:

```
/etc/rc.d/rc2.d/Sopsmshub start
/etc/rc.d/rc2.d/Kopsmshub stop
```

### Agent

#### Opwise 5.1 and Later

To start or stop the Opwise Agent (UAG) version 5.1 or later, see [Starting and Stopping \(Indesca\) Components](#).

#### Opwise 1.7 and Earlier

To start or stop the Opwise Agent versions 1.7 and earlier, use the following commands:

```
/etc/rc.d/rc2.d/Sopsagent start
/etc/rc.d/rc2.d/Kopsagent stop
```

## Starting-Stopping Opwise Components on HP-UX

- Transporter
- Message Hub
- Agent
  - Opwise 5.1 or Later
  - Opwise 1.7 or Earlier

**Note**

Unless otherwise noted, the start/stop procedures on this page are appropriate for each supported version of HP-UX:

- HP-UX Itanium (ia64)
- HP-UX PA\_RISC (hppa)

**IMPORTANT**

For all start/stop procedures on this page, enter the commands as **ROOT**.

### Transporter

**HP-UX Itanium only:**

To start or stop the Transporter (all Opwise versions), use the following commands:

```
/sbin/init.d/opstransport start
/sbin/init.d/opstransport stop
```

### Message Hub

**HP-UX Itanium only:**

To start or stop the Message Hub (all Opwise versions), use the following commands:

```
/sbin/init.d/opsmshub start
/sbin/init.d/opsmshub stop
```

### Agent

**Opwise 5.1 or Later**

To start or stop the Opwise Agent (UAG) version 5.1 or later, see [Starting and Stopping \(Indesca\) Components](#).

**Opwise 1.7 or Earlier**

To start or stop the Opwise Agent versions 1.7 and earlier, use the following commands:

```
/sbin/init.d/opsagent start
/sbin/init.d/opsagent stop
```

## Starting-Stopping Opwise Components on Linux

- Controller
- Transporter
- Message Hub
- Agent
  - Opwise 5.1 and Later
  - Opwise 1.7 and Earlier

**Note**

The start/stop procedures on this page are appropriate for each supported version of Linux:

- Linux x64 (x86\_64)
- Linux x86 (i686)
- Linux for System z (s390)

### Controller

To start or stop the Controller (all Opwise versions), use the following commands:

```
/$TOMCAT_HOME/bin/startup.sh
/$TOMCAT_HOME/bin/shutdown.sh
```

or

```
service tomcat start
service tomcat stop
```

If you have configured your system with **init.d**, you also can use the following commands:

```
/etc/init.d/tomcat start
/etc/init.d/tomcat stop
```

**IMPORTANT**

For all of the following start/stop procedures on this page, enter the commands as **ROOT**.

### Transporter

To start or stop the Transporter (all Opwise versions), use the following commands:

```
service opstransport start
service opstransport stop
```

## Message Hub

To start or stop the Message Hub (all Opswise versions), use the following commands:

```
service opsmshub start
service opsmshub stop
```

## Agent

### Opswise 5.1 and Later

To start or stop the Opswise Agent (UAG) versions 5.1 and later, see [Starting and Stopping \(Indesca\) Components](#).

### Opswise 1.7 and Earlier

To start or stop the Opswise Agent versions 1.7 and earlier, use the following commands:

```
service opsagent start
service opsagent stop
```

## Starting-Stopping Opwise Components on Solaris

- Transporter
- Message Hub
- Agent
  - Opwise 5.1 and Later
  - Opwise 1.7 and Earlier

**Note**

The start/stop procedures on this page are appropriate for each supported version of Solaris:

- Solaris Intel (i386)
- Solaris SPARC (sparc)

**IMPORTANT**

For all start/stop procedures on this page, enter the commands as **ROOT**.

### Transporter

To start or stop the Transporter (all Opwise versions), use the following commands:

```
/etc/init.d/opstransport start
/etc/init.d/opstransport stop
```

### Message Hub

To start or stop the Message Hub (all Opwise versions), use the following commands:

```
/etc/init.d/opsmsgshub start
/etc/init.d/opsmsgshub stop
```

### Agent

#### Opwise 5.1 and Later

To start or stop the Opwise Agent (UAG) versions 5.1 and later, see [Starting and Stopping \(Indesca\) Components](#).

#### Opwise 1.7 and Earlier

To start or stop the Opwise Agent versions 1.7 and earlier, use the following commands:

```
/etc/init.d/opsagent start
/etc/init.d/opsagent stop
```

## Starting-Stopping Opwise Components on Windows

- From the DOS Command Prompt
  - Controller
  - Transporter
  - Message Hub
  - Agent
- From Windows Services
  - Opwise 5.1 and Later
  - Opwise 1.7 and Earlier

### From the DOS Command Prompt

#### Controller

To start or stop the Controller (all Opwise versions), use the following commands:

```
c:\$CATALINA_HOME\bin\startup.bat
c:\$CATALINA_HOME\bin\shutdown.bat
```

#### Transporter

To start or stop the Transporter (all Opwise versions), use the following commands:

```
sc start wmsgardt
sc stop wmsgardt
```

#### Message Hub

To start or stop the Message Hub (all Opwise versions), use the following commands:

```
sc start wmsgardh -s HUB
sc stop wmsgardh
```

#### Agent

##### Opwise 5.1 and Later

You must start and stop the Agent (UAG) [From Windows Services](#).

##### Opwise 1.7 and Earlier

To start or stop the Opwise Agent, use the following commands:

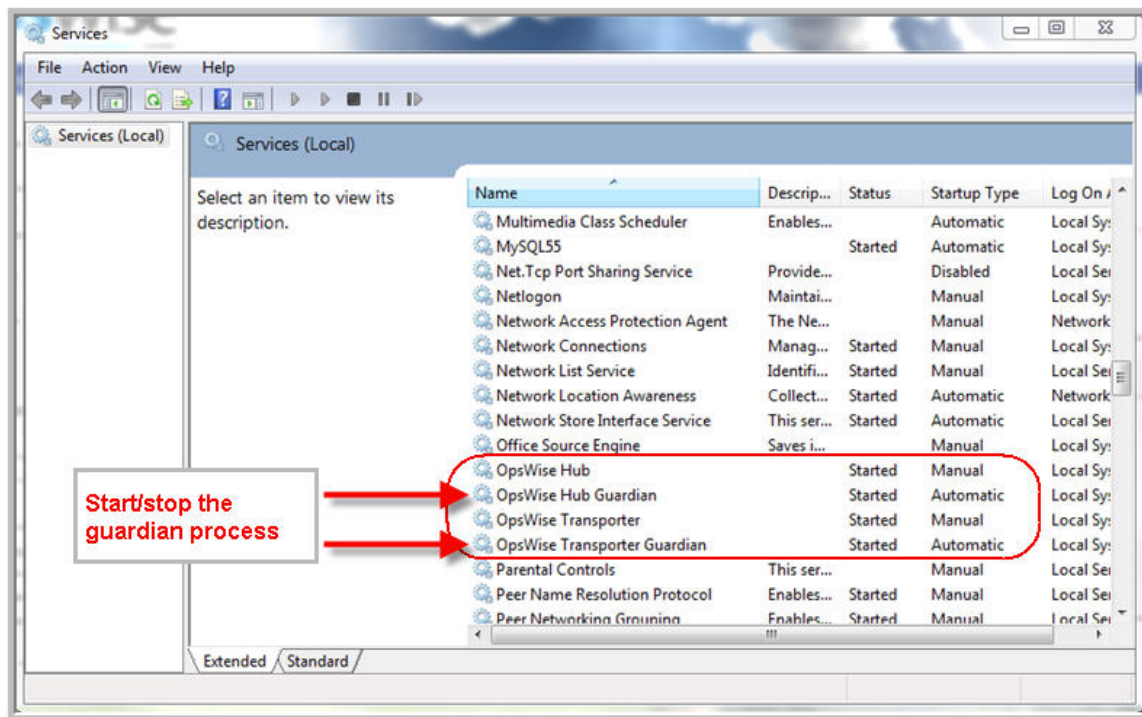
```
sc start wmsgarda -s AGENTNAME
sc stop wmsgarda
```

### From Windows Services

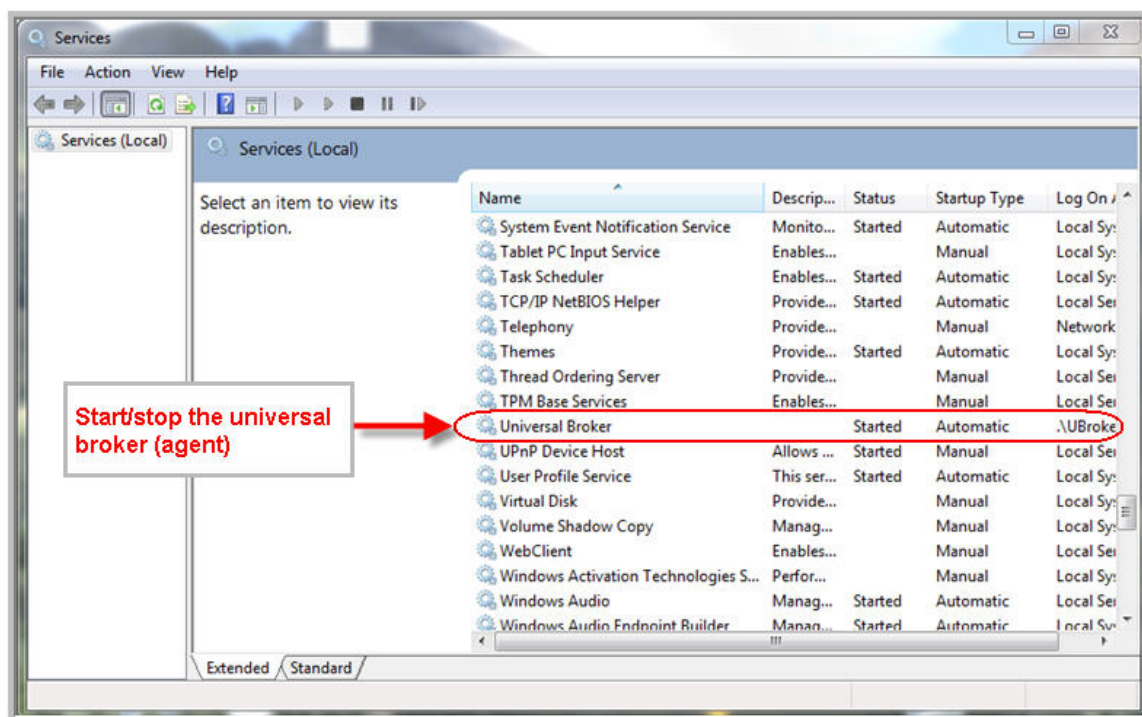
#### Opwise 5.1 and Later

The Opwise Windows Services are created automatically during the install process. A separate service entry is created for the Message Hub and Transporter, plus a guardian service for each.

To start and stop these services, right-click the guardian service and selecting **Start** or **Stop**. The guardian service is used to start and stop the Opwise services and to monitor each service for status.



The Agent is referred to in the Services window as the Universal Broker. It has no guardian service.



**Note**

The logon user for the services must have full access to the Opwise install directory.

**Opwise 1.7 and Earlier**



The Opswise Windows Services are created automatically during the install process. A separate service entry is created for the Agent, Message Hub, and Transporter, plus a guardian service for each component. The guardian service is used to start and stop the Opswise services and to monitor each service for status. Each service entry is identified as an Opswise service, as shown below:

|                                                                                                                |        |
|----------------------------------------------------------------------------------------------------------------|--------|
|  OpsWise Agent                | Manual |
|  OpsWise Agent Guardian       | Manual |
|  OpsWise Hub                  | Manual |
|  OpsWise Hub Guardian         | Manual |
|  OpsWise Transporter          | Manual |
|  OpsWise Transporter Guardian | Manual |



**Note**

The logon user for the services must have full access to the Opswise install directory.

To start and stop the components:

|               |                                                    |
|---------------|----------------------------------------------------|
| <b>Step 1</b> | Highlight its associated <b>guardian service</b> . |
| <b>Step 2</b> | Right-click to display the services menu.          |
| <b>Step 3</b> | Click <b>Start</b> or <b>Stop</b> , as needed.     |

## Starting-Stopping Opswise Components on zOS

### Agent

#### Opswise 5.1 and Later

To start or stop the Opswise Agent (UAG) version 5.1 or later, see [Starting and Stopping \(Indesca\) Components](#).

#### Opswise 1.7 and Earlier

To start or stop the Opswise Agent version 1.7 or earlier, use the following commands:

##### MVS Start command

```
S [OPSPROC] (where OPSPROC is the name of the procedure you added to the system.PROCLIB)
```

##### MVS Stop command

```
P [OPSPROC]
```

# Administration

# Opswise Automation Center Administration



## Overview

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[Administration of Opswise Automation Center](#)



## High Availability

---

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[High Availability System](#)

[How High Availability Works](#)

[What To Do If a Failover Occurs](#)

[High Availability Configuration](#)

[High Availability Components](#)



## Maintenance Scripts

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[Maintenance Scripts](#)



## Ports Configuration

---

[Ports Configuration](#)



## Space Requirements

---

[Space Requirements](#)



## Opswise Automator

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[Opswise Component Properties](#)

[Controller Properties \(glide.c\)](#)

[Message Hub Properties \(ms\)](#)

[Transporter Properties \(trans\)](#)

[Agent Properties](#)

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

[Opswise System Properties](#)

[LDAP Properties](#)

[User Interface Properties](#)

[Report Email Properties](#)



The information on these pages also is located in the [Opswise Automation Center 5.1.1 Installation and Administration Guide.pdf](#).

# Administration Overview

## Administration

The following table identifies the features that comprise Opwise Automation Center administration and provides links to detailed information about each feature.

|                                        |                                                                                                                                                                                                          |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High Availability Configuration</b> | To achieve High Availability for your Opwise Automation Center system, you must configure the Cluster Nodes, Connectors (the Transporter and Message Hub components of the Opwise Outboard), and Agents. |
| <b>Maintenance Scripts</b>             | Set of maintenance scripts that help you maintain and administer your Opwise installation.                                                                                                               |
| <b>Ports Configuration</b>             | Ports configured for Workload Automation 5 components and prerequisites, which you can change during installation or configuration.                                                                      |
| <b>Opwise Component Properties</b>     | Properties files for Opwise Automation Center components that are installed automatically. You can change these properties by editing the files.                                                         |
| <b>Opwise System Properties</b>        | Properties for the Opwise Automation Center system are set automatically during installation. You can change these properties through the user interface.                                                |
| <b>Additional Opwise Properties</b>    | Properties that are not set at installation. You must set them through the user interface.                                                                                                               |

## High Availability

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

### Introduction

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

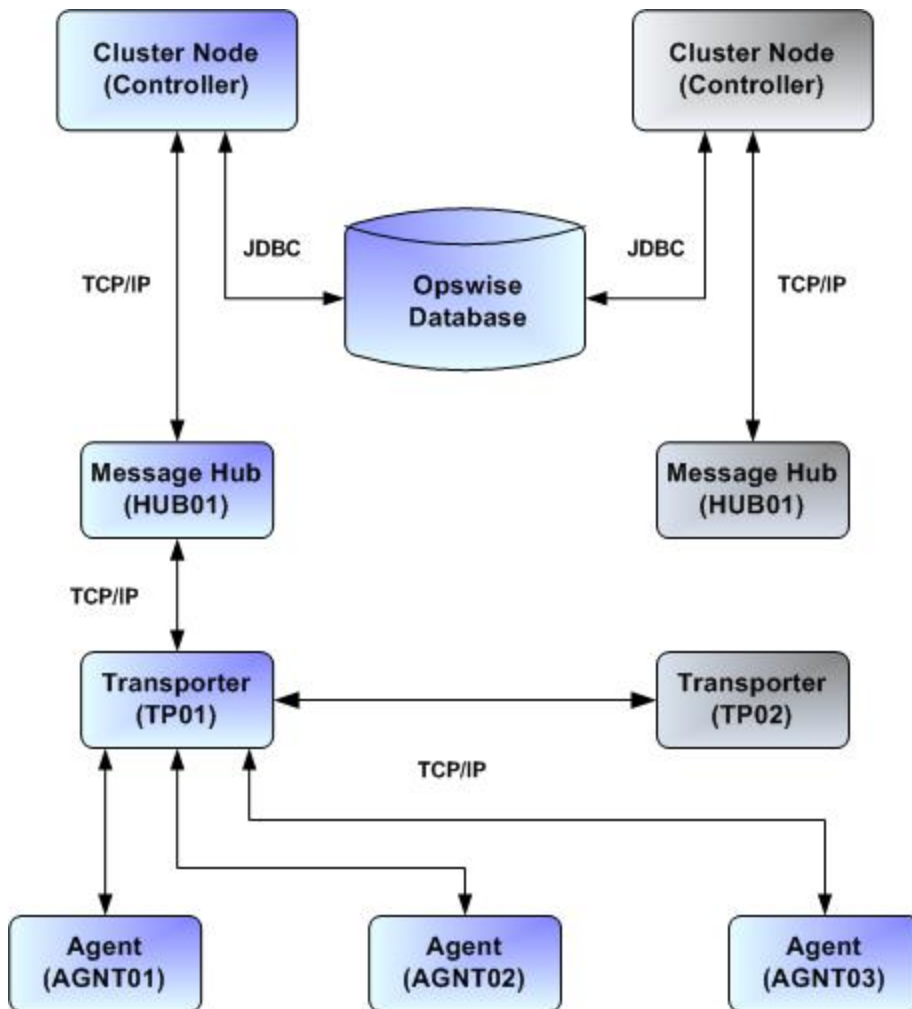
### High Availability System

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

In this environment, there are:

- Two [Cluster Nodes](#) (Controllers)
- Two [Message Hubs](#)
- Two [Transporters](#)
- Three [Agents](#)

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.

## How High Availability Works

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

Each Cluster Node connects to the database and is connected to its own Message Hub. Each Message Hub and Agent connect to one or more Transporters, and each Transporter is connected to every other Transporter.

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



### Note

In a typical High Availability environment, the Message Hub likely connects to a Transporter inside a firewall, and Agents connect to Transporter(s) outside the firewall. (If the Agent is using VPN, it can go right to the Transporter inside the firewall.)

## Cluster Node Status

The status (mode) of a Cluster Node indicates whether or not it is the node processing work:

|                          |                                                                                                           |
|--------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Active</b>            | Cluster node currently is performing all system processing functions.                                     |
| <b>Passive/Available</b> | Cluster Node is connected to its Message Hub and is available to perform all system processing functions. |

|                            |                                                                                                                                                                                |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Passive/Unavailable</b> | Cluster Node is not connected to its Message Hub but is available to perform all system processing functions, except that it would not be able to exchange data with an Agent. |
| <b>Offline</b>             | Cluster node is not running or is inoperable and needs to be restarted.                                                                                                        |

**Note**

Cluster nodes in Passive/Available and Passive/Unavailable status can perform [limited](#) system processing functions.

## High Availability Start-Up

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

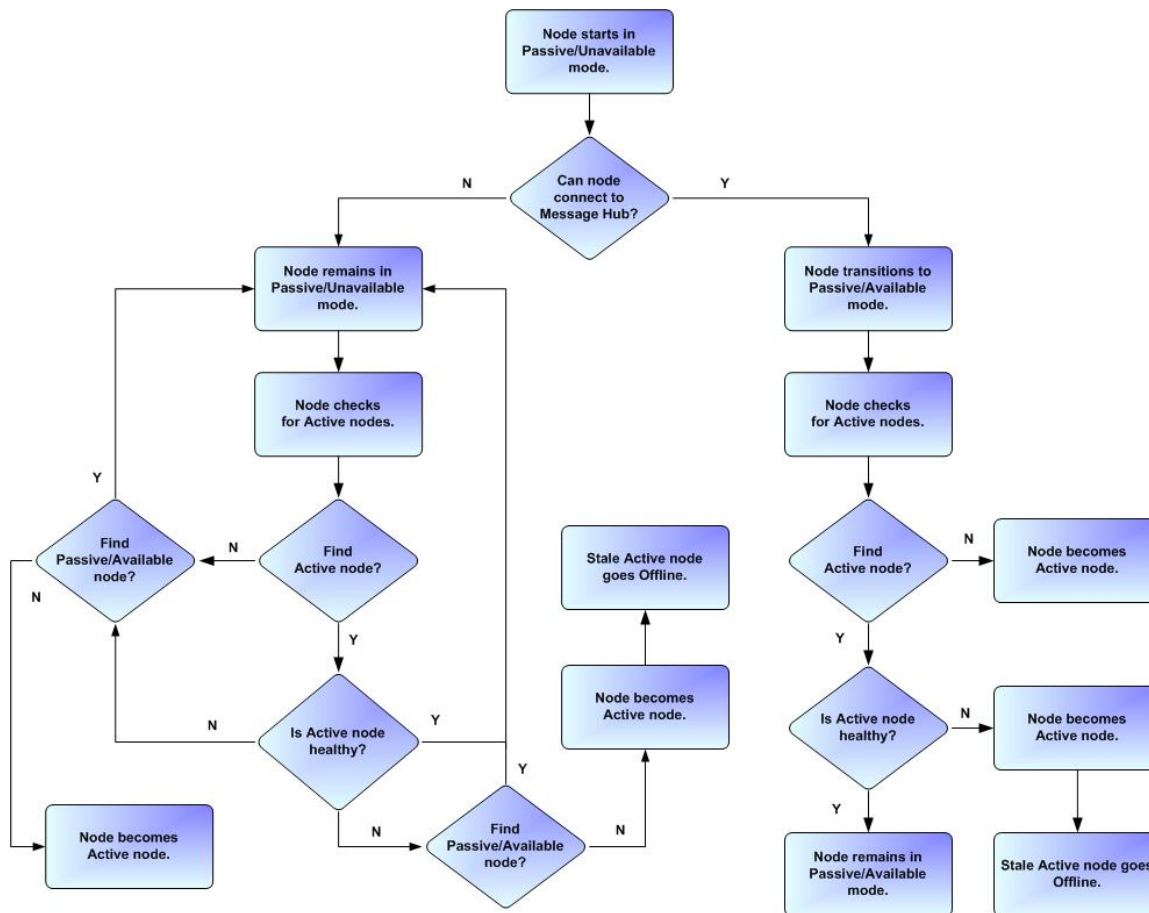
|               |                                                                                                                                                     |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | User starts the Cluster Nodes.                                                                                                                      |
| <b>Step 2</b> | Each Cluster Node reads its <code>glide.properties</code> file.                                                                                     |
| <b>Step 3</b> | Each Cluster Node locates and connects to the database and retrieves information about the Opwise Automation Center environment.                    |
| <b>Step 4</b> | Each Cluster Node connects to its Message Hub.                                                                                                      |
| <b>Step 5</b> | If a Cluster Node becomes the Active node, its Message Hub becomes active and initiates contact with a Transporter (from its list of Transporters). |
| <b>Step 6</b> | Each Agent connects to a Transporter (from its list of Transporters).                                                                               |

## Determining Mode of a Cluster Node at Start-up

A Cluster Node starts in Passive/Unavailable mode. It then determines if it should remain in Passive/Unavailable mode or switch to either Passive/Available or 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, they continuously monitor the heartbeats of the other running nodes.

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

- If the node is in Passive/Available mode, it will take over as the Active node.
- If the node is in Passive/Unavailable mode, it will take over as the Active node only if no other node is in Passive/Available mode.

This determination is made as follows:

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

### Active Cluster Node without a Message Hub

An Active Cluster Node that loses the connection to its Message Hub checks regularly to see if there is a Passive/Available node eligible to become Active; that is, it has a connected Message Hub. If it finds an eligible node, the Active node without a connected Message Hub automatically will stop and restart. This allows the Passive/Available node to take over as the Active node.

This stop and restart is done within the Tomcat process. That is, the Tomcat process remains running and the Opwise deployment just shuts down its internal processes (threads) and then starts them back up. Tomcat itself is not stopped and started.

## What To Do If a Failover Occurs

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

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

|               |                                                                                                                                                                                                                                                                                               |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Access the new Active node in your browser. To determine which node is now Active, from the navigation pane select <b>Automation Center Resources &gt; Cluster Nodes</b> and check the <b>Mode</b> column on the Cluster Nodes list screen (see <a href="#">Viewing Node Status</a> , below). |
| <b>Step 2</b> | 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.                                                                                                                              |

## Viewing Node Status

To view a list of all nodes, select **Automation Center Resources > Cluster Nodes**. The Cluster Node list screen displays a list of all registered nodes, as shown in the following example.



### Note

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

| Node Id                       | Mode                | Start Time                | Timestamp                 | Uptime                              | Release | Build Id        |
|-------------------------------|---------------------|---------------------------|---------------------------|-------------------------------------|---------|-----------------|
| opwise_server1:8804-opcluster | Offline             | 2012-02-10 09:13:04 -0500 | 2012-02-10 10:53:17 -0500 | 1 Hour 40 Minutes 13 Seconds        | 5.1.1.0 | 02-09-2012_1044 |
| opwise_server4:8802-opcluster | Active              | 2012-02-05 09:12:48 -0500 | 2012-02-13 11:03:57 -0500 | 8 Days 1 Hour 52 Minutes 28 Seconds | 5.1.1.0 | 02-09-2012_1044 |
| opwise_server2:8803-opcluster | Passive/Available   | 2012-02-10 09:12:57 -0500 | 2012-02-13 11:04:01 -0500 | 3 Days 1 Hour 51 Minutes 3 Seconds  | 5.1.1.0 | 02-09-2012_1044 |
| opwise_server3:8801-opcluster | Passive/Unavailable | 2012-02-10 09:15:18 -0500 | 2012-02-13 11:04:02 -0500 | 3 Days 1 Hour 48 Minutes 43 Seconds | 5.1.1.0 | 02-09-2012_1044 |

To see detailed information about a node on the list, click the **Node ID** for that node. The Cluster Node definition screen for that node displays.

See [Cluster Nodes](#) for a description of the fields displayed on these screens.

## High Availability Configuration

To achieve High Availability for your Opwise Automation Center system, you must configure the Cluster Nodes, Connectors (the Transporter and Message Hub components of the Opwise Outboard), and Agents.

For communication purposes, the Message Hub and Agent are really just clients of the Transporter and are treated as peers in that regard. For High Availability, they each must have a selection list of Transporter addresses from which they can choose.

## 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 `glide.properties` files are the same.

For example:

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

The `glide.properties` file also specifies the Message Hub to which the Cluster Node connects. However, if you want to select a different Message Hub for a Cluster Node, you can do via the [Cluster Nodes](#) definition screen for that Cluster Node.

## Configuring Connector Components

## Transporters

All Transporters should be configured so that their `transport.props` files have the same list of Transporters. This is so all of the Transporters stay in constant communication with each other.

## Message Hubs

Each Message Hub should be configured so that its `msghub.props` file has a list of available Transports to choose from.

## Configuring Agents

If you want to configure an Agent to be able to access multiple Transporters, you must configure the Universal Automation Center Agent (UAG) `AUTOMATION_CENTER_TRANSPORTS` configuration option.

## Configuring Notifications Based on Component Status

You can configure Opwise to generate [Email Notifications](#) or [SNMP Notifications](#) based on the status of your Cluster Nodes, Agents, and Connectors (Message Hub and Transporter).

See [Cluster Nodes](#) and [Agents and Connectors](#) for instructions.

## High Availability Components

This section provides detailed information on the Opwise Cluster Node, Connector (Message Hub and Transporter), and Agent components in a High Availability environment.

### Cluster Node

Each Opwise installation consists of one or more Cluster Nodes (nodes). Only one node is required to run Opwise; 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/Available and/or Passive/Unavailable mode.

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

### Passive Cluster Node Limitations

Passive cluster nodes cannot execute any automated or scheduled work.

Also, from a Passive node you cannot:

- Perform a workflow instance insert task operation.
- Update a task instance.
- Update an enabled trigger.
- Update an enabled data backup/purge.

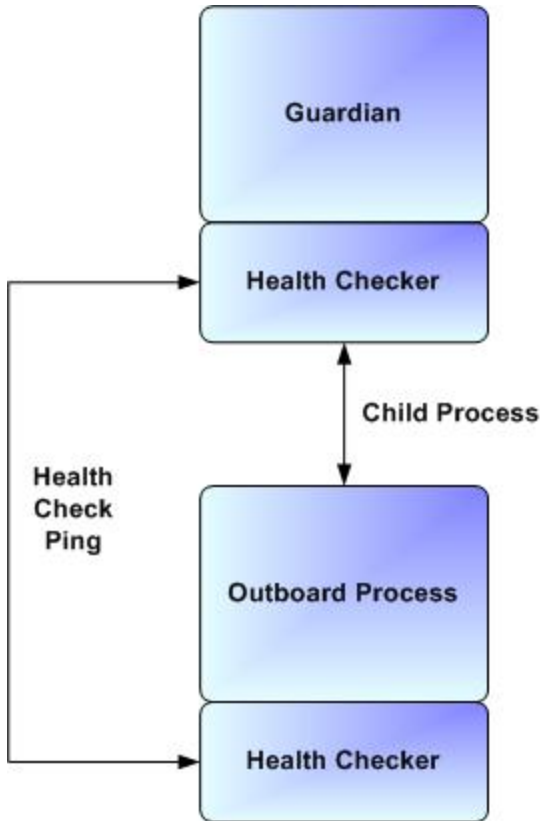
However, Passive nodes do let you perform a limited number of processing functions, such as:

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

## Connector Components

Opwise Connector components, [Message Hub](#) and [Transporter](#), each have a guardian process that monitors the health of the component and restarts it if problems arise.

As shown in the following illustration, once the guardian process starts a component, a health checker is initialized in the component. At regular intervals, the guardian process requests health status of its component. If a good status is received in a nominal amount of time, the component is considered operational. If the component does not respond, the guardian restarts the component.



The component also issues heartbeats to the Cluster Node to indicate that it is operational. A WatchDog component in the Cluster Node ensures the heartbeats are regular and available. Otherwise, the Cluster Node marks the component as inoperable.

Components interact using a guaranteed messaging system. A client (Agent or Message Hub) sends a message and the receiver sends an acknowledgment that the message has been processed. This procedure guarantees that even a process failure would not prevent a message from eventually arriving at the intended destination.

Details specific to each component are provided below.

## Message Hub

The Message Hub runs as a Windows service or Linux/Unix daemon. It listens for input messages from the Agents (arriving via a Transporter) and places them on input message queues for the Cluster Node. It also polls the output message queue for messages to construct and send to Agents.

Each Cluster Node connects to its own Message Hub.

During an outage of the Message Hub, the Cluster Node assigns the survivor as the Active Message Hub. In the case of HUB01 failing, HUB01 on the backup system will convert to Active mode and HUB01 on the initial system will be in Available mode when it eventually restarts.

Once a Message Hub has registered with its Cluster Node, the node creates a record of the Message Hub in the database.

To view all registered Message Hubs, select **Resources > Connectors** from the navigation pane. The following example shows a Message Hub called MACWIN03 - HUB01.

| Connector Name              | Host Name | Type      | Queue | Version | Last Heartbeat            | Status |
|-----------------------------|-----------|-----------|-------|---------|---------------------------|--------|
| Msghub - MACWIN03 - HUB01   | MACWIN03  | Msghub    | HUB01 | HEAD    | 2008-11-20 13:55:31 -0800 | ✓      |
| Transport - MACWIN03 - TP01 | MACWIN03  | Transport | TP01  | HEAD    | 2008-11-20 13:55:31 -0800 | ✓      |

## Transporter

The Transporter runs as a Windows service or Linux/Unix daemon. The Transporter provides a group communications capability using the publish-subscribe model to exchange messages among subscribed clients. All messaging is performed using TCP protocol. You can run one or more Transporters; they generally are established on different machines.

The Transporter currently uses the following ports:

|                   |                                |
|-------------------|--------------------------------|
| <b>4803</b>       | Normal client communications   |
| <b>4804, 4805</b> | Inter-transport communications |



**Note**

Before changing port 4803, check [port configuration](#) to see a list of default ports. You cannot change ports 4804 and 4805.

Each client is provided a list of possible Transporters to use. If one fails and reconnect attempts fail, the client switches to the next on the list. Transporters can restart at any time and be considered candidates for messaging traffic.

Once a Transporter has registered with the Cluster Node, the Cluster Node creates a record of it in the database. You can view all registered Transporters by selecting **Resources > Connectors** from the navigation pane. The following example shows a Transporter called MACWIN03 - TP01.

|                          | Connector Name              | Host Name | Type      | Queue | Version | Last Heartbeat            | Status |
|--------------------------|-----------------------------|-----------|-----------|-------|---------|---------------------------|--------|
| <input type="checkbox"/> | Msghub - MACWIN03 - HUB01   | MACWIN03  | Msghub    | HUB01 | HEAD    | 2008-11-20 13:55:31 -0800 |        |
| <input type="checkbox"/> | Transport - MACWIN03 - TP01 | MACWIN03  | Transport | TP01  | HEAD    | 2008-11-20 13:55:31 -0800 |        |

## Agent

The Agent runs as a Windows service or Linux/Unix daemon. The 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 back status and results. It performs these functions by exchanging messages with the Cluster Node.

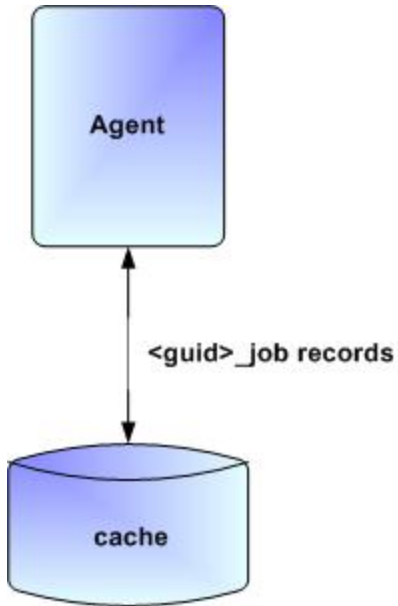
Once an Agent has registered with the Cluster Node, you can view it by selecting that Agent type from the **Automation Center Resources** section of the navigation pane. A list displays showing all the registered Agents of that type. See [Agent and Connector Resources](#) for more information.

If an Agent fails, its guardian process 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:

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Each time the Agent receives a task, it writes to cache a record called <code>[guid]_job</code> , where <code>[guid]</code> is a unique tracking number assigned to the task instance.                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Step 2</b> | As the task runs, the Agent updates the <code>[guid]_job</code> record with status information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Step 3</b> | When the task run completes, the Agent deletes the <code>[guid]_job</code> record.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Step 4</b> | If an Agent is restarted, it looks in the cache for <code>[guid]_job</code> 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 <b>IN-DOUBT</b> . 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.



## Load Balancer

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

|                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><a href="http://serverhost:8080/opswise/is_active_node.do">http://serverhost:8080/opswise/is_active_node.do</a></p> | <p>If a cluster node is active, this URL returns the status <b>200</b> (OK) and a simple one word content of <b>ACTIVE</b>.</p> <p>If a cluster node is not active, this URL returns the status <b>403</b> (cluster node is not active) and lists the actual mode of the cluster node: <b>PASSIVE/AVAILABLE</b>, <b>PASSIVE/UNAVAILABLE</b>, or <b>OFFLINE</b>.</p>                                                                   |
| <p><a href="http://serverhost:8080/opswise/ops_node_info.do">http://serverhost:8080/opswise/ops_node_info.do</a></p>   | <p>This URL returns information about a cluster node:</p> <ul style="list-style-type: none"> <li>• Node: serverhost.com:8080-opswise</li> <li>• Release: 5.1.1.6*</li> <li>• Build Id: 03-26-2013_1129</li> <li>• Mode: Active</li> <li>• Host Name: serverhost.com</li> <li>• Host IP: 192.168.50.50</li> <li>• Uptime: 7 Days 3 Hours 22 Minutes 37 Seconds</li> <li>• Hub Hostname: localhost</li> <li>• Hub Port: 6776</li> </ul> |

## Maintenance Scripts

- [Overview](#)
- [Maintenance Script Completion](#)
- [Maintenance Script Descriptions](#)
- [Maintenance Scripts for Windows](#)

### Overview

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

To access the maintenance scripts, select **Automation Center Administration > Configuration > Maintenance Scripts** from the navigation pane.

These are maintenance scripts, running them could cause system disruption or loss of data.

**com.opwise**

```
[view] [run] clear_cache.js
[view] [run] customer_update.js
[view] [run] database_table_counts.js
[view] [run] fix_imported_activity_data.js
[view] [run] fix_imported_data.js
[view] [run] gc.js
[view] [run] gc_and_clear_cache.js
[view] [run] health_check.js
[view] [run] inspect_persistent_events.js
[view] [run] inspect_persistent_timers.js
[view] [run] ldap_refresh.js
[view] [run] ldap_refresh_debug.js
[view] [run] maintenance_updates.js
[view] [run] memory_usage.js
[view] [run] opwise_bulk_export.js
[view] [run] opwise_bulk_export_activity.js
[view] [run] opwise_bulk_export_history.js
[view] [run] opwise_bulk_export_with_versions.js
[view] [run] opwise_bulk_import.js
[view] [run] opwise_data_reload.js
[view] [run] opwise_dictionary_upgrade.js
[view] [run] opwise_load_demo.js
[view] [run] opwise_load_demo_extension.js
[view] [run] opwise_restart.js
[view] [run] opwise_updates.js
[view] [run] overdue_timers_delete.js
[view] [run] overdue_timers_list.js
[view] [run] pause.js
[view] [run] purge_history.js
[view] [run] purge_instances.js
[view] [run] purge_logs_and_cache.js
[view] [run] purge_message_queues.js
[view] [run] purge_versions_exceeding_maximum.js
[view] [run] reset_all_agent_cluster_task_counts.js
[view] [run] reset_all_agent_task_counts.js
[view] [run] resume.js
[view] [run] roll_log.js
[view] [run] system_properties.js
[view] [run] thread_list.js
[view] [run] thread_list_by_cpu_usage.js
[view] [run] thread_stacktrace.js
```

## Maintenance Script Completion

When a maintenance script has been run and completed, Opwise issues an INFO-level log message.

For example:

```
2012-10-18-16:29:22:679 INFO [http-8080-3] Running System Script: script_name.js
```




```
2012-10-18-16:29:23:254 INFO [http-8080-3] System Script completed: script_name.js in N Seconds
```

## Maintenance Script Descriptions

The following table describes and, where appropriate, provides links for each maintenance script.

| Script                         | Description and Links                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| clear_cache.js                 | Clears the internal server cache. You can use this script if you are experiencing unexpected behaviors with the Opwise system. For example, Technical Support may ask you to first run this script to clear the server cache, then clear your browser cache.                                                                                                                                                                                                                                               |
| customer_update.js             | This script is used when applying patches to the Opwise system.<br><br>For use only by Technical Support personnel or when you are requested to run it by Technical Support.                                                                                                                                                                                                                                                                                                                               |
| database_table_counts.js       | Number of rows in each table.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| fix_imported_activity_data.js  | This script must be executed if bulk importing Activity data from a 5.1.0.x or earlier version of Opwise Automation Center.                                                                                                                                                                                                                                                                                                                                                                                |
| fix_imported_data.js           | Only at the request of Technical Support, this script may need to be executed when importing data from a 5.1.0.x or earlier version of Opwise Automation Center.                                                                                                                                                                                                                                                                                                                                           |
| gc_and_clear_cache.js          | Runs the <a href="#">clear_cache.js</a> maintenance script, then clears the Opwise instance LRU caches, and then runs the <a href="#">gc.js</a> maintenance script.                                                                                                                                                                                                                                                                                                                                        |
| gc.js                          | Runs the "garbage collector." The gc method suggests that the Java Virtual Machine expend effort toward recycling unused objects in order to make the memory they currently occupy available for quick reuse. When control returns from the method call, the Java Virtual Machine has made a best effort to reclaim space from all discarded objects.                                                                                                                                                      |
| health_check.js                | Displays information about the current instance of Opwise. Example: <div data-bbox="578 1152 1446 1350" data-label="Code-Block" style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <pre>*** Script: ----- Using 13.75% of memory. In Use: 125.13 MB Allocated: 510.63 MB. Free: 785.12 MB. Max Heap: 910.25 MB. UniversalOutputMessageQueue: 4 Queue Size, State: DISCONNECTED UniversalInputMessageProcessor: State: UNKNOWN jdbc:mysql://localhost/:root:: In Use: 0, Total: 4</pre> </div> |
| inspect_persistent_events.js   | For use only by Technical Support personnel or when you are requested to run it by Technical Support.                                                                                                                                                                                                                                                                                                                                                                                                      |
| inspect_persistent_timers.js   | For use only by Technical Support personnel or when you are requested to run it by Technical Support.                                                                                                                                                                                                                                                                                                                                                                                                      |
| ldap_refresh.jsldap_refresh.js | If LDAP is configured for this installation, it refreshes every 24 hours. This script forces a refresh. The refresh is performed in the background and sends log entries to the Opwise log.                                                                                                                                                                                                                                                                                                                |
| ldap_refresh_debug.js          | If LDAP is configured for this installation, it refreshes every 24 hours. This script forces a refresh. The refresh 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 <a href="#">ldap.refresh.js</a> .                                                                                                                    |
| maintenance_updates.js         | For use only when it is requested to run as part of a maintenance upgrade.                                                                                                                                                                                                                                                                                                                                                                                                                                 |

|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>memory_usage.js</p>                      | <p>Provides a summary of Opswise memory usage. Example:</p> <pre style="border: 1px solid black; padding: 10px;"> *** Script: ----- Heap: init = 512MB (524288K) used = 213MB (218961K) committed = 510MB (523008K) max = 910MB (932096K) ----- Non Heap: init = 18MB (18688K) used = 60MB (62325K) committed = 61MB (62560K) max = 560MB (573440K) ----- Code Cache Type Non-heap memory Usage init = 2MB (2304K) used = 9MB (9250K) committed = 9MB (9312K) max = 48MB (49152K) Peak Usage init = 2MB (2304K) used = 9MB (9258K) committed = 9MB (9312K) max = 48MB (49152K) Collection Usage ----- PS Eden Space Type Heap memory Usage init = 128MB (131072K) used = 88MB (90788K) committed = 168MB (172288K) max = 339MB (347200K) Peak Usage init = 128MB (131072K) used = 260MB (267008K) committed = 260MB (267008K) max = 340MB (348736K) Collection Usage init = 128MB (131072K) used = 0MB (0K) committed = 168MB (172288K) max = 339MB (347200K) ----- PS Survivor Space Type Heap memory Usage init = 21MB (21824K) used = 0MB (0K) committed = 1MB (1152K) max = 1MB (1152K) Peak Usage init = 21MB (21824K) used = 31MB (32315K) committed = 40MB (41728K) max = 40MB (41728K) Collection Usage init = 21MB (21824K) used = 0MB (0K) committed = 1MB (1152K) max = 1MB (1152K) ----- PS Old Gen Type Heap memory Usage init = 341MB (349568K) used = 125MB (128172K) committed = 341MB (349568K) max = 682MB (699072K) Peak Usage init = 341MB (349568K) used = 131MB (134334K) committed = 341MB (349568K) max = 682MB (699072K) Collection Usage init = 341MB (349568K) used = 125MB (128172K) committed = 341MB (349568K) max = 682MB (699072K) ----- PS Perm Gen Type Non-heap memory Usage init = 16MB (16384K) used = 51MB (53098K) committed = 52MB (53248K) max = 512MB (524288K) Peak Usage init = 16MB (16384K) used = 51MB (53098K) committed = 78MB (80000K) max = 512MB (524288K) Collection Usage init = 16MB (16384K) used = 51MB (53057K) committed = 52MB (53248K) max = 512MB (524288K) </pre> |
| <p>opswise_bulk_export.js</p>               | <p>Exports all current record definitions, without versions, when migrating data to updated software (see <a href="#">Upgrading the Opswise Controller</a>).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <p>opswise_bulk_export_activity.js</p>      | <p>Exports all task instance activity (task instances in the <a href="#">Activity screen</a>) when migrating data to updated software (see <a href="#">Upgrading the Opswise Controller</a>).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <p>opswise_bulk_export_history.js</p>       | <p>Exports task instance history (task instances in the <a href="#">History screen</a>), which includes a history of task instance end statuses, including Cancelled, Failed, Skipped, Finished, or Success, when migrating data to updated software. For z/OS, a history of Step Restarted statuses also are included on the History screen (see <a href="#">Upgrading the Opswise Controller</a>).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>opswise_bulk_export_with_versions.js</p> | <p>Exports all current records along with older (non-current) versions of record definitions when migrating data to updated software (see <a href="#">Upgrading the Opswise Controller</a>).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <p>opswise_bulk_import.js</p>               | <p>Imports all data from an exported file when migrating data to updated software (see <a href="#">Upgrading the Opswise Controller</a>).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p>opswise_data_reload.js</p>               | <p>For use only by Technical Support personnel.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p>opswise_dictionary_upgrade.js</p>        | <p>For use only by Technical Support personnel.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p>opswise_load_demo.js</p>                 | <p>Loads base demo data into your database, including example workflows, tasks, and so on.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| opswise_load_demo_extension.js         | Loads additional demo data.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| opswise_restart.js                     | Stops and restarts the Opswise application within the running Tomcat server. Opswise is effectively shut down and started up without stopping and starting Tomcat.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| opswise_updates.js                     | For use only by Technical Support personnel.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| overdue_timers_delete.js               | Deletes any overdue timers, as listed by the <a href="#">overdue_timers_list.js</a> script.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| overdue_timers_list.js                 | Lists any timers that are overdue, which normally should be none.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| pause.js                               | Pauses the Opswise system, which prevents Opswise from processing tasks and events. If an event or task is already running when you run this script, the event or task will complete. Opswise remains in a paused state until you run the <a href="#">resume.js</a> script.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| purge_history.js                       | <p>Purges all records from the <a href="#">History table</a> (ops_history).</p> <p>Any time a task instance goes into an end state (cancelled, failed, skipped, finished, success), a copy of it is written to the History table. You can view your History table by selecting <b>Task Instances &gt; History</b> from the navigation pane.</p> <p>If you do not need to keep or back up your task instance history, we recommend that you run this script periodically; otherwise, make sure you schedule a routine <a href="#">Data Backup/Purge</a> for history using Automation Center <b>Administration-&gt; Data Backup / Purge</b> from the navigation pane. Executing a Data Backup/Purge of an extremely large history table can seriously degrade system performance.</p> |
| purge_instances.js                     | <p>Purges everything in the <a href="#">Activity table</a> (ops_exec), which contains all system activity, including task instances in any status (including end states). Records in the Activity table remain there until they are purged.</p> <div style="background-color: #ffe6e6; padding: 10px; border: 1px solid #ccc;"> <p> <b>Warning</b><br/>Running this script will purge any live data; that is, task instances that have not completed. For a list of tables that will be purged, see the <a href="#">opswise_bulk_export_activity.js</a> script.</p> </div>                                                                                                                         |
| purge_logs_and_cache.js                | Sends a request to all active agents to purge their logs and cache.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| purge_message_queues.js                | (Deprecated.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| purge_versions_exceeding_maximum.js    | Purges versions of records in excess of the maximum specified by the <a href="#">System Default Maximum Versions</a> Opswise system property.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| reset_all_agent_cluster_task_counts.js | Resets the current task count for all agent clusters to 0.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| reset_all_agent_task_counts.js         | Resets the current task count for all agents to 0.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| resume.js                              | Resumes the Opswise system after it has been paused using the <a href="#">pause.js</a> script.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| roll_log.js                            | Renames the existing log to a timestamped log and opens a new log file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| system_properties.js                   | <p>Displays all system properties.</p> <p>You may be asked to run this script by Technical Support.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| thread_list.js                         | <p>Captures information about internal system processes.</p> <p>You may be asked to run this script by Technical Support.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| thread_list_by_cpu_usage.js            | <p>Captures information about internal system processes.</p> <p>You may be asked to run this script by Technical Support.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| thread_stacktrace.js                   | <p>Captures information about internal system processes.</p> <p>You may be asked to run this script by Technical Support.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## Maintenance Scripts for Windows

By default, Windows uses a GUI-based VBScript interpreter (`wscript.exe`). However, we recommend you use the console version of the VBScript interpreter (`cscript.exe`). To do so, specify `cscript.exe` before the script name in a task definition, as shown in the following

example:

```
"cscript.exe C:\Work\script.vbs".
```

With `wscript.exe`, if your script tries to display an error message that requires a user-response (for example, **Click OK**), you will never see the dialog box. The script therefore gets stuck in the "Running" state.

## Opwise Automation Center Properties

- Overview
- Opwise Component Properties
  - Resetting Component Properties
  - Controller Properties ([glide.properties](#))
  - Message Hub Properties ([msghub.props](#))
  - Transporter Properties ([transport.props](#))
  - Agent Properties
- Opwise System Properties
  - Overriding Opwise System Properties
- Additional Properties

### Overview

Opwise Automation Center provides three types of configurable properties:

|                              |                                                                                                                                                                                                               |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Component Properties</b>  | Properties set for a component when it is installed. There is a properties file for each component. You can reset these properties by stopping the component, editing the file, and restarting the component. |
| <b>System Properties</b>     | Properties set for the Opwise Automation Center system when the Controller is installed. You can reset these properties at any time, without having to stop any components, through the user interface.       |
| <b>Additional Properties</b> | Properties that are not set at installation. You must set them through the user interface.                                                                                                                    |

### Opwise Component Properties

Opwise provides files that allow you to configure properties for controlling its operation.

There is a properties file for each Opwise component:

- Controller ([glide.properties](#))
- Message Hub ([msghub.props](#))
- Transporter ([transport.props](#))
- Agent ([Agent Properties](#))
- Sample Command Line Interface configuration file, `cmdtools.props` (see [Command Line Interface \(CLI\)](#))

The values for the properties in these files are filled in by the installation processes for the [Controller](#), [Outboard](#) (Message Hub, Transporter, and Command Line Interface), and [Agent](#). Some of the values are based on information that you provide during the installation.

### Resetting Component Properties

You can reset properties for any component after installation by stopping that component, editing the file, and then restarting the component. The changes will take effect after the restart (see [Starting-Stopping Opwise Components](#)).



### Controller Properties ([glide.properties](#))

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

The `glide.properties` file resides here:

```
[tomcat directory]\webapps\opwise\WEB-INF\properties
```

| Property Name | Description | Default |
|---------------|-------------|---------|
| (For MySQL)   |             |         |

|                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <pre>glide.db.rdbms=mysql</pre>                                             | <p>Database type. Specify this property if you are using a MySQL database.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |
| <pre>glide.db.url=jdbc:mysql://localhost/</pre>                             | <p>JDBC connect URL. Specify this property if you are using a MySQL database.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               |
| <p><b>(For SQLServer)</b></p>                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |
| <pre>glide.db.rdbms=sqlserver</pre>                                         | <p>Database type. Specify this property if you are using a SQLServer database.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               |
| <pre>glide.db.url=jdbc:sqlserver://localhost:1433;DatabaseName=opwise</pre> | <p>JDBC connect URL. Specify this property if you are using a SQLServer database.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |
| <p><b>(For LDAP)</b></p>                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |
| <pre>glide.ldap.groups.filter_indirect=</pre>                               | <p>When this property is set to true, any Groups synchronized indirectly (that is, through a User's <b>memberOf</b> attribute) will honor the Group search filter and Group OU filters under the LDAP Advanced Settings section.</p> <div data-bbox="836 932 1261 1087" style="background-color: #ffffcc; padding: 5px;"> <p> <b>Note</b><br/>The code default for this property, which is used if this property is not set, is false.</p> </div>                                                                                                                                                                                        | <p>true</p>   |
| <pre>glide.ldap.groups.single_parent_per_child=</pre>                       | <div data-bbox="836 1146 1261 1325" style="background-color: #ffe6e6; padding: 5px;"> <p> <b>IMPORTANT</b><br/>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 Opwise Automation Center is to copy the members of a Sub Group into the Parent Group.</p> <p>When this property is set to true, Opwise Automation Center 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> | <p>false</p>  |
| <p><b>(For all databases)</b></p>                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |
| <pre>glide.db.user=</pre>                                                   | <p>Login ID that Opwise will use to log in to your database.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>root</p>   |
| <pre>glide.db.password=</pre>                                               | <p>Password that Opwise will use to log in to your database.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>(none)</p> |

|                                               |                                                                                                                                                               |                 |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <code>glide.db.password.encrypted=</code>     | Encrypted version of <code>glide.db.password</code> that will replace <code>glide.db.password</code> in the <code>glide.properties</code> file upon start-up. | (none)          |
| <code>glide.db.name=</code>                   | Name for the Opwise database.                                                                                                                                 | opwise          |
| <code>glide.sys.boot_script=</code>           | Script used to initialize the database. <b>Internal use only; do not change.</b>                                                                              | zboot_opwise.js |
| <code>glide.db.pooler.connections=</code>     | Minimum number of connections that can remain idle in the pool without extra connections being created, or zero to create none.                               | 25              |
| <code>glide.db.pooler.connections.max=</code> | Maximum number of active connections that can be allocated from this pool at the same time, or negative for no limit.                                         | 100             |
| <code>glide.servlet.port=</code>              | Port number used by Tomcat.                                                                                                                                   | 8080            |
| <code>glide.ui.session_timeout=</code>        | Default browser session timeout, in seconds. To use the Tomcat session configuration (default 30 seconds), set this property to 0.                            | 60              |
| <code>glide.xmlhttp.excessive=</code>         | Default maximum number of items included for selection in the left side of the slushbucket (for example).                                                     | 200             |
| <code>opwise.hub.host=</code>                 | Hostname or IP address of the machine where the Message Hub resides.                                                                                          | localhost       |
| <code>opwise.hub.port=</code>                 | Port number used for Message Hub communications.                                                                                                              | 6776            |
| <code>opwise.trustmanager.algorithm=</code>   | Java trust manager algorithm. For IBM AIX, value must be <code>IbmX509</code> . The default works for all other platforms.                                    | SunX509         |
| <code>opwise.trustmanager.provider=</code>    | Java trust manager provider. For IBM AIX, value must be <code>IBMJSSE2</code> . The default works for all other platforms.                                    | SunJSSE         |

## Sample glide.properties File

```
DB
glide.db.rdbms=mysql
glide.db.url=jdbc:mysql://localhost/
MYSQL
glide.db.rdbms=mysql
glide.db.url=jdbc:mysql://localhost/
MS SQLSERVER
glide.db.rdbms=sqlserver
glide.db.url=jdbc:sqlserver://localhost:1433;DatabaseName=opwise
ORACLE
glide.db.rdbms=oracle
glide.db.url=jdbc:oracle:thin:@//localhost:1521/@oracle.db.name@
#
COMMON
#
hub host & port properties
opwise.hub.host=localhost
opwise.hub.port=6776
#
trust manager algorithm & provider
#opwise.trustmanager.algorithm=SunX509
#opwise.trustmanager.provider=SunJSSE
#
glide.db.user=root
glide.db.password=pswd
glide.db.name=opwise
glide.sys.boot_script=zboot_opwise.js
glide.db.pooler.connections=2
glide.db.pooler.connections.max=40
glide.servlet.port=8080
glide.ui.session_timeout=60
glide.xmlhttp.excessive=200
```

## Message Hub Properties (msghub.props)

The **msghub.props** file resides here:

```
[agent install directory]\etc
```

| Property Name                      | Description                                                                                                                                                                                                              | Default           |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <code>config.loglvl=[s t]</code>   | Level of logging for this process: <ul style="list-style-type: none"> <li>• s = severe</li> <li>• e = error</li> <li>• w = warning</li> <li>• i = informational</li> <li>• d = debugging</li> <li>• t = trace</li> </ul> | i (informational) |
| <code>config.txtdebug=[y n]</code> | Specifies whether all messages are logged to the console, as opposed to being written to the log.                                                                                                                        | n                 |
| <code>network.transports=</code>   | Port and network address of the Opwise Transporter(s) used for messaging. When using multiple Transporters, separate each port@network address by a comma or semicolon.                                                  | 4803@127.0.0.1    |
| <code>network.core=</code>         | Queue name for the Message Hub.                                                                                                                                                                                          | HUB01             |



|                               |                                                                                                                                                                                   |         |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| <code>network.tpqname=</code> | (Deprecated.)                                                                                                                                                                     | TP01    |
| <code>network.gmsg=</code>    | Specifies whether Guaranteed messaging is used.                                                                                                                                   | false   |
| <code>core.bind_iface=</code> | Listening IP address of Message Hub for Controller/Message Hub communications                                                                                                     | 0.0.0.0 |
| <code>core.bind_port=</code>  | Listening port of Message Hub for Controller/Message Hub communications                                                                                                           | 6776    |
| <b>SSL Properties</b>         |                                                                                                                                                                                   |         |
| <code>enable_ssl=</code>      | Value = <b>yes</b> or <b>no</b> . Enables and disables SSL protocol for network communications between the Hub and the Opwise Controller. Supported on Linux/Unix, Windows, z/OS. | No.     |

### Sample msghub.props File

```
#
config.loglvl=I
#
network.transports=4803@127.0.0.1
network.core=HUB01
network.tpqname=TP01
#
Core connection properties
#
core.bind_port=6776
core.bind_iface=0.0.0.0
#
SSL is enabled with a value of YES. The default is NO.
#
ssl.enable=no
```

### Transporter Properties (transport.props)

The **transport.props** file resides here:

```
[agent install directory]\etc
```

| Property Name                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                 | Default   |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <code>transport1.ipaddr=</code> | Network address for one of the Transporters in the configuration. This parameter is generally specified along with the companion parameters, <code>transport[n].port</code> and <code>transport[n].name</code> . Configurations with a single transport will have only one set of entries. For High Availability configurations, additional sets of entries are prefixed with "transport[n]" where [n] is a sequentially advancing integer. | 127.0.0.0 |
| <code>transport1.port=</code>   | Port number used for client to client communication by this Transporter.                                                                                                                                                                                                                                                                                                                                                                    | 4803      |

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <pre>transport1.name=</pre>    | <p>Queue name used by this Transporter.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>TP01</p>                                                                    |
| <pre>debug.flags=</pre>        | <p>ALL - show all messages.<br/>                 ACM - Access control log messages.<br/>                 CONFIGURATION - configuration processing log messages.<br/>                 DEBUG - Debug messages.<br/>                 DATA_LINK - Low-level communication log messages.<br/>                 EVENTS - Event processing log messages.<br/>                 EXIT - Process termination log messages.<br/>                 FLOW_CONTROL - Message flow control log messages.<br/>                 GROUPS - Groups processing log messages.<br/>                 HOP, TCP_HOP, ROUTE, RING - Inter-transport communications log messages.<br/>                 MEMBERSHIP - Subscribers membership log messages.<br/>                 MEMORY - Memory management log messages.<br/>                 NETWORK - Networking protocol log messages.<br/>                 OBJ_HANDLER - Objects processing log messages.<br/>                 PRINT - Informational messages.<br/>                 PROTOCOL - SPREAD protocol messages.<br/>                 QOS - QoS log messages.<br/>                 SYSTEM - System messages.<br/>                 SESSION - Client session management messages.<br/>                 STATUS - Status messages.<br/>                 SKIPLIST - Skiplist processing.<br/>                 SECURITY - Security-related messages.<br/>                 TIMESTAMP - Show timestamps at the beginning of the log messages.</p> | <p>SESSION<br/>                 PRINT EXIT<br/>                 MEMBERSHIP</p> |
| <pre>config.loglvl=[s t]</pre> | <p>Not currently used. See <code>debug.flags=</code>, above, for logging options.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                |
| <p><b>SSL Properties</b></p>   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                |
| <pre>ssl.public.cert=</pre>    | <p>Specifies the path to the PEM-formatted digital certificate file to be used by the Transport for SSL network communications between the Transporter, Hub and agents. By providing a digital certificate and private key, the SSL protocol is enabled. When no digital certificate or private key is specified, SSL is disabled. Supported on Linux/Unix, Windows, z/OS.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>(none)</p>                                                                  |
| <pre>ssl.private.key=</pre>    | <p>Specifies the path to the PEM-formatted private key file that corresponds to the digital certificate specified in the <code>ssl.public.cert</code> property. By providing a digital certificate and private key, the SSL protocol is enabled. When no digital certificate or private key is specified, SSL is disabled. If the private key file is password protected, the password must be specified with the <code>ssl.keypassword</code> property. Supported on Linux/Unix, Windows, z/OS.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>(none)</p>                                                                  |
| <pre>ssl.keypassword=</pre>    | <p>Provides the password for a password-protected private key file specified with the <code>ssl.private.key</code> property. Supported on Linux/Unix, Windows, z/OS.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>(none)</p>                                                                  |

**Sample transport.props File**

```
#win01
transport1.ipaddr=192.168.30.64
transport1.port=4803
transport1.name=TP01
#win03
transport2.ipaddr=192.168.30.66
transport2.port=4803
transport2.name=TP02
#win02
transport3.ipaddr=192.168.30.65
transport3.port=4803
transport3.name=TP03

debug.flags= SESSION PRINT EXIT MEMBERSHIP NETWORK GROUPS TIMESTAMP

ssl.private.key=c:\opwise\etc\transport.pkey
ssl.public.cert=c:\opwise\etc\transport.cert
```

## Agent Properties

|                   |                                                                                                                                                                                                                                                                         |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Windows</b>    | Agent properties are located in Universal Automation Center Agent configuration file, <b>uags.conf</b> , which resides here:<br><br><div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <pre>DriveID:\ProgramData\Universal\conf\uags.conf</pre> </div> |
| <b>Linux/Unix</b> | Agent properties are located in the Universal Automation Center Agent (UAG) configuration file, <b>uags.conf</b> , which resides here:<br><br><div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <pre>/etc/universal/uags.conf</pre> </div>            |
| <b>z/OS</b>       | Configuration information for all components is in the configuration library, <b>UNV.UNVCONF</b> .                                                                                                                                                                      |

## Sample uags.conf File

```
installation_directory "C:\Program Files\Universal\UAGSrv"
message_level INFO
security DEFAULT
automation_center_transports 4803@127.0.0.1
automation_center_core HUB01
agent_clusters "Opwise - Default Linux/Unix Cluster, Opwise - Default Windows Cluster"
loglvl I
netname OPSAUTOCONF
```

For details on each configuration option in **uags.conf**, see [Universal Automation Center Agent Configuration Options](#).

## Opwise System Properties

Properties for your Opwise Automation Center system are set (in the Opwise database) during the Controller installation. You can reset these properties any time after Opwise Automation Center is in operation without having to stop and restart any Opwise components.

Opwise system properties do not reside in a properties file; you reset them through the user interface:

**Step 1** Select **Automation Center Administration > Configuration > Properties** from the navigation pane. The Opwise Properties screen displays.

| Name                                              | Value                                                                    |
|---------------------------------------------------|--------------------------------------------------------------------------|
| Administrator Email Address                       |                                                                          |
| Agent Cache Retention Period In Days              | 7                                                                        |
| Agent Heartbeat Interval In Seconds               | 120                                                                      |
| Agent Prefix                                      | AGNT                                                                     |
| Automatically Create Versions                     | true                                                                     |
| Automatically Purge Versions                      | false                                                                    |
| Automatically Skip Conflicting Multi-Origin Paths | false                                                                    |
| Broadcast On Hold If Cluster Suspended            | true                                                                     |
| Compress Bundle Promotion Payload                 | false                                                                    |
| Copy Notes To Task Instances For Reporting        | false                                                                    |
| Create Version On Related List Change             | true                                                                     |
| Enable Trigger Simulation                         | false                                                                    |
| Exclude Holidays For Business Days                | false                                                                    |
| Export Agent References                           | false                                                                    |
| Export Path                                       | /home/tomcat/apache-tomcat-7.0.41/opwise_export                          |
| Expose Infitran Script                            | false                                                                    |
| Expose Resolved Script                            | false                                                                    |
| Forecast Period In Days                           | 31                                                                       |
| Input Queue Processing Interval In Seconds        | 5                                                                        |
| License Key                                       | QW+hqj1xQJ9Q+u4evk2dRApupbBMJXTdT3XZESAzleNFnH4cA6eYSbDKrWs04WcB99j7ttkV |
| List Qualifying Times Format                      | EEEE, MMMMMM dd, yyyy HH:mm:ss z Z                                       |
| Lock Account After Maximum Failed Login Attempts  | false                                                                    |
| Log File Retention Period In Days                 | 5                                                                        |
| Maximize Activity Table Width                     | true                                                                     |
| Maximum Failed Login Attempts                     | 5                                                                        |
| Maximum Nested Variable Depth                     | 25                                                                       |
| Maximum Processing Threads                        | 1000                                                                     |
| Maximum Timer Threads                             | 300                                                                      |
| Opwise Log Level                                  | INFO                                                                     |
| Override Published Reports Base URL               |                                                                          |
| Password Expiration Enabled                       | false                                                                    |
| Password Expiration In Days                       | 30                                                                       |
| Platform Log Level                                | INFO                                                                     |
| Retrieve Output Default Maximum Lines             | 100                                                                      |
| Server Fail Over In Seconds If No Message Hub     | 120                                                                      |
| Start Server Paused                               | false                                                                    |
| Stop Unknown Application Monitors                 | false                                                                    |
| System Default Command Line Access                | Yes                                                                      |
| System Default Maximum Versions                   | 100                                                                      |
| System Default Web Browser Access                 | Yes                                                                      |
| System Default Web Service Access                 | Yes                                                                      |
| Workflow Search Result Limit                      | 200                                                                      |


**Step 2** Click a property name to open the record for the property you want to change.


The following table describes the Opwise System Properties:

| Name<br>(Property Name) | Description | Default |
|-------------------------|-------------|---------|
|-------------------------|-------------|---------|

|                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |
|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Administrator Email Address<br>(opwise.admin.email_addr)                                                   | System administrator email address(es) specified as the recipient(s) for <a href="#">System Notifications</a> . Addresses for multiple administrators should be specified in a comma-separated list.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | (none) |
| Agent Cache Retention Period in Days<br>(opwise.agent.cache.retention)                                     | Number of days that cache files (stdout, stderr) are retained by the system.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 7      |
| Agent Heartbeat Interval in Seconds<br>(opwise.agent.heartbeat.interval.in.seconds)                        | Number of seconds between each heartbeat message sent by the agent to the Controller.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 120    |
| Agent Prefix<br>(opwise.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<br>(opwise.version.automatically)                                            | Specification (true or false) for whether or not Opwise will retain copies of previous versions. Affects system behavior when you make updates to records in your Opwise database, such as changing a task definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | true   |
| Automatically Purge Versions<br>(opwise.version.automatically_purge)                                       | <p>Specification (true or false) for whether or not Opwise will automatically purge versions of records that exceed the maximum number of version records to maintain per definition as defined by the <a href="#">System Default Maximum Versions</a> Opwise system property.</p> <p>Changing the value from <b>false</b> (the default) to <b>true</b> will automatically invoke a system-wide purge of versions for definitions that exceed the maximum number of versions specified by <a href="#">System Default Maximum Versions</a>.</p> <p>Also if the value is <b>true</b>:</p> <ul style="list-style-type: none"> <li>Any modification of a definition that generates a new version will automatically invoke a purge of the oldest version of that definition if the number of versions exceeds the configured maximum.</li> <li>Any modification of <a href="#">System Default Maximum Versions</a> that decreases the maximum number of versions to maintain will invoke a system-wide purge of versions for definitions that exceed the new maximum number of versions.</li> </ul> | false  |
| Automatically Skip Conflicting Multi-Origin Paths<br>(opwise.workflow.skip_conflicting_multi_origin_paths) | Specification (true or false) for whether or not Opwise 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<br>(opwise.cluster_broadcast_hold_on_suspended)                     | Specification (true or false) for whether or not cluster broadcast tasks will be run if the agent cluster selected for the broadcast has been <a href="#">suspended</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | true   |
| Compress Bundle Promotion Payload<br>(opwise.bundle.payload_compression)                                   | Specification (true or false) for whether or not Opwise will compress record bundles during a promotion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | false  |

|                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                               |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Copy Notes to Task Instances for Reporting<br>(opwise.notes.copy_to_execs)       | Specification (true or false) for whether or not Opwise 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | false                                                                                                                                         |
| Create Version On Related List Change<br>(opwise.version.on.related.list.change) | Specification (true or false) for whether or not a record version will be created if the user changes a record associated with the current record. For example, if true, the system will create a version of the task when the user changes a task variable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | true                                                                                                                                          |
| Enable Trigger Simulation<br>(opwise.trigger.simulation)                         | Specification (true or false) for whether or not to simulate the launching of tasks when triggers are eligible to fire. If simulation is enabled, only the scheduled launch of the task by the trigger is inhibited. All other aspects of the trigger execution, including generation of forecast data, are enabled.<br><br>You can still force a trigger by using the Trigger Now command or launch a task by using the Launch command.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | false                                                                                                                                         |
| Exclude Holidays for Business Days<br>(opwise.calendar.exclude_holidays)         | Specification (true or false) for whether or not Opwise will consider a holiday that falls on Business Day (as specified by the Calendar) as a non-Business Day.<br><br><ul style="list-style-type: none"> <li>• If true, holidays that fall on Business Days are considered non-Business Days.</li> <li>• If false (the default), holidays that fall on Business Days are considered Business Days.</li> </ul> <p>For example, if the default value (false) is used, and a task is defined to run on Business Days (as defined by the Calendar), and Christmas Day is defined as a holiday in the Calendar, the task will run on Christmas Day if Christmas Day falls on a Business Day.</p> <p>This behavior applies to Triggers, Task Run Criteria, and JavaScript functions that operate on Business Days, and provides a means to avoid having to specify a restriction or skip criteria for holidays.</p> | false                                                                                                                                         |
| Export Agent References<br>(opwise.export.agent_references)                      | Specification (true or false) for whether or not Opwise will export referenced agents when exporting definition XMLs with the <a href="#">Export References</a> feature.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | false                                                                                                                                         |
| Export Path<br>(opwise.export.path)                                              | Pathname where exported xml files are written.<br><br>This applies only when using the <a href="#">Export -&gt;XML</a> feature, not the bulk export.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <tomcat-home>/opwise_export<br><br><b>or</b><br><tomcat-home>\opwise_export<br><br>(<tomcat-home> is the base tomcat installation directory.) |
| Expose Infitran Script<br>(opwise.infitran.expose_script)                        | <b>For debugging use only.</b> Specification (true or false) for whether or not Opwise prepares a script when it launches a file transfer on an Infitran installation. If troubleshooting is necessary, enabling this property allows you to view the script in the Output tab on the task instance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | false                                                                                                                                         |

|                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                       |
|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Expose Resolved Script<br>(opwise.script_library.expose_resolved_script)                    | <p>Specification (true or false) for whether or not to generate a SCRIPT output type capturing the resolved contents of the <a href="#">Script Library</a> script for each task instance run attempt that utilizes a script from the Script Library. This property only applies to Script Library scripts defined with the <b>Resolve Opwise Variables</b> option checked. Any user with the task instance Read permission for a specific task instance will be able to view the SCRIPT output type content for that specific instance.</p> <p>To avoid generating unnecessary output, we recommend enabling this property only for debugging purposes. The unresolved script content can always be viewed from the Script Library.</p> | false                                 |
| Forecast Period in Days<br>(opwise.forecast.days)                                           | Number of days to be included in a trigger forecast. See <a href="#">Displaying Trigger Forecast Information</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 31                                    |
| Heartbeat Processing Interval in Seconds<br>(opwise.hb.processing.interval.in.seconds)      | <b>Deprecated.</b> Interval (in seconds) at which the various watchdogs inspect the heartbeats of attached components.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 10                                    |
| Input Queue Processing Interval in Seconds<br>(opwise.iq.processing.interval.in.seconds)    | Number of seconds that are used to poll the incoming message queues.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5                                     |
| License Key<br>(opwise.license)                                                             | License key for your installation; provided to you by your Opwise representative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | (none)                                |
| List Qualifying Times Format<br>(opwise.trigger.date.format.display)                        | Format that you want Opwise to use when listing qualifying times for Time and Cron Triggers. See <a href="#">List Qualifying Times</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EEEE, MMMMMM dd, yyyy<br>HH:mm:ss z Z |
| Lock Account After Maximum Failed Login Attempts<br>(opwise.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 failed login attempts that is allowed, as specified by the <a href="#">Maximum Failed Login Attempts</a> property.</p> <p>Whenever this property is enabled (value is changed from <b>false</b> to <b>true</b>), the current number of failed login attempts for all users is reset to 0.</p>                                                                                                                                                                                                                                                                                                       | false                                 |
| Log File Retention Period in Days<br>(opwise.log.retention)                                 | Number of days that Opwise retains its Controller log files.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5                                     |
| Maximize Activity Table Width<br>(opwise.activity.maximize_width)                           | <p>Specification (true or false) for whether or not Opwise will maximize the width of the Activity table.</p> <div style="background-color: #ffffcc; padding: 10px; border: 1px solid #ccc;"> <p> <b>Note</b><br/>The default value (true) applies only to new deployments of Opwise Controller. Applying Opwise Controller maintenance (5.1.1.10 or later) will not change the current value.</p> </div>                                                                                                                                                                                                                                            | true                                  |
| Maximum Failed Login Attempts<br>(opwise.login.maximum_attempts)                            | Maximum number of successive failed login attempts that a user can make before the user's account is locked if the <a href="#">Lock Account After Maximum Failed Login Attempts</a> property is set to <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5                                     |
| Maximum Nested Variable Depth<br>(opwise.variable.maximum_depth)                            | Maximum number of nested variables allowed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 25                                    |

|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |        |
|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Maximum Processing Threads<br>(opwise.threads.max)                                                   | Maximum number of processing threads used.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1000   |
| Maximum Timer Threads<br>(opwise.timer.threads.max)                                                  | Maximum number of timer threads used.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 300    |
| Opwise Log Level<br>(opwise.log.level)                                                               | Level of logging for the Opwise Controller:<br><br><ul style="list-style-type: none"> <li>• ALL</li> <li>• TRACE</li> <li>• DEBUG</li> <li>• INFO</li> <li>• WARN</li> <li>• ERROR</li> <li>• SEVERE</li> <li>• OFF</li> </ul>                                                                                                                                                                                                                                                                                                                                             | INFO   |
| Override Published Reports Base URL<br>(opwise.reports.publish.base_url)                             | Allows full control over the Base URL. For example, you can set this property to a value of the format:<br><br><div style="border: 1px solid #ccc; padding: 5px; width: fit-content; margin: 10px auto;"> <pre>http[s]://hostname[:port]/</pre> </div>                                                                                                                                                                                                                                                                                                                     | (none) |
| Password Expiration Enabled<br>(opwise.login.password_expiration.enabled)                            | 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 <a href="#">Password Expiration in Days</a> property.<br><br><div style="background-color: #ffffcc; padding: 10px; margin: 10px auto; width: fit-content;">  <b>Note</b><br/>                     Password expiration is not applicable to LDAP authenticated users.                 </div> | false  |
| Password Expiration in Days<br>(opwise.login.password_expiration)                                    | Maximum number of days that a user password can remain unchanged before expiring, if the <a href="#">Password Expiration Enabled</a> property value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                                       | 30     |
| Platform Log Level<br>(log.level.platform)                                                           | Level of logging for the platform where Opwise operates:<br><br><ul style="list-style-type: none"> <li>• ALL</li> <li>• TRACE</li> <li>• DEBUG</li> <li>• INFO</li> <li>• WARN</li> <li>• ERROR</li> <li>• OFF</li> </ul>                                                                                                                                                                                                                                                                                                                                                  | WARN   |
| Retrieve Output Default Maximum Lines<br>(opwise.retrieve_output.maximum_lines)                      | Limit for the number of lines retrieved when Automatic Output Retrieval is enabled on a task.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 100    |
| Server Fail Over in Seconds If No Message Hub<br>(opwise.hub.failover.threshold.interval.in.seconds) | In a high availability configuration, if the communications between the Controller and the Message Hub (MsgHub) are disrupted, the number of seconds that Controller waits before bringing itself down and allowing the backup Controller server to take over.                                                                                                                                                                                                                                                                                                             | 120    |
| Start Server Paused<br>(opwise.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<br>(opwise.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 Command Line Access<br>(opwise.user.command_line.default)        | Specification (Yes or No), for all users whose <b>Command Line access</b> field on their <a href="#">User Definition screen</a> is set to -- <b>System Default</b> --, for whether or not to control a user's ability to access Opwise through the Command Line Interface (CLI).           | Yes   |
| System Default Maximum Versions<br>(opwise.version.maximum.default)             | Maximum number of version records (1 to 255) to maintain per definition.                                                                                                                                                                                                                   | 100   |
| System Default Web Browser Access<br>(opwise.user.browser.default)              | Specification (Yes or No), for all users whose <b>Web Browser access</b> field on their <a href="#">User Definition screen</a> is set to -- <b>System Default</b> --, for whether or not to control a user's ability to access Opwise through the Opwise Automation Center user interface. | Yes   |
| System Default Web Service Access<br>(opwise.user.web_service.default)          | Specification (Yes or No), for all users whose <b>Web Service access</b> field on their <a href="#">User Definition screen</a> is set to -- <b>System Default</b> --, for whether or not to control a user's ability to access Opwise through the RESTful Web Services API.                | Yes   |
| Workflow Search Result Limit<br>(opwise.workflow.search_result_limit)           | Results limit when querying for task records from the Task Find or Open Workflow pop-up.                                                                                                                                                                                                   | 200   |

## Overriding Opwise System Properties

You can override any Opwise system property by adding it to the [Controller Properties \(glide.properties\)](#) file and restarting the Controller (see [Starting-Stopping Opwise Components](#)).

You must add a Opwise system property to `glide.properties` in the same format as a `glide.properties` property: `<Property Name>=<value>`. For example: `opwise.startup.paused=true`

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

## Additional Properties

The following additional properties are available through the user interface:

|                                  |                                                                                                                                               |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LDAP Properties</b>           | Enable the LDAP bridge for both UNIX and Windows operating systems.                                                                           |
| <b>User Interface Properties</b> | Select the number of items that appear on any <a href="#">list</a> from the drop-down menu that displays in the top right corner of the page. |
| <b>Report Email Properties</b>   | Set up the email server that you want to use for scheduling automatic report distribution.                                                    |

## Ports Configuration

### Ports Configuration

Ports configured for Workload Automation 5 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 Broker                             | 7887         |
| Universal Broker (for IPC)                   | 7987         |
| Universal Application Container (local port) | 7889         |
| Universal Enterprise Controller              | 8778         |
| Opwise Controller (Tomcat)                   | 8080         |
| Opwise Message Hub                           | 6776         |
| Opwise Transporter                           | 4803         |
| Opwise Inter-Transport Communications*       | 4804, 4805   |

\* **NOTE:** These ports currently cannot be changed.

## Space Requirements

- [Overview](#)
- [Controller](#)
- [Message Hub and Transporter](#)
- [Agent](#)
- [Database](#)
  - [Calculating Space Requirements](#)
  - [Output Retrieval](#)

### Overview

The [Current Product Downloads](#) page of the Stonebranch website specifies the size of the Controller, Outboard, and Agent packages for all supported platforms.

Most of the space requirements for these components are based on the amount of logging that will be done, as shown below.

### Controller

The Controller war file is approximately 60MB compressed and 200MB uncompressed, using a total of approximately 260MB of space when fully deployed.

However, the space requirements for the Controller are driven largely by logging. Logging requirements are based on the log levels selected in the [Opwise Log Level](#) and [Platform Log Level](#) Opwise system properties.

A minimum 2GB of space is recommended for logging and other operations that require the Controller file system, such as bulk (and list) import/export.

The [Log File Retention Period in Days](#) Opwise system property lets you specify the number of days that a Controller log file (and an [Agent log file](#)) is retained before it is purged. The default is 5 days.

### Message Hub and Transporter

Space requirements for the Message Hub and Transporter are driven largely by logging.

Message Hub and Transport log files, since they most likely are logging for multiple Agents, grow a lot faster than Agent logs. Therefore, a minimum 2GB of space is recommended for logging.

The Message Hub and Transporter log files roll over at midnight (12:00 a.m.) or whenever they are restarted.



**Note**

The Message Hub and Transporter log files are not purged automatically. You will have to apply a log directory clean-up routine to purge those files.

### Agent

Space requirements for an Agent are driven largely by logging. A minimum 500MB of space is recommended.

Each Opwise Agent contains a Universal Broker log and an Agent log.

The Universal Broker [LOG\\_FILE\\_GENERATIONS](#) configuration option lets you specify how many log files to save in the Universal Broker log directory. The default is 5.

The Agent log rolls over at midnight (12:00 a.m.) or whenever the Agent is restarted.

The [Log File Retention Period in Days](#) Opwise system property lets you specify the number of days that an Agent log file (in addition to a [Controller log file](#)) is retained before it is purged. The default is 5 days.

## Database

Each type of database software (MySQL, Microsoft SQL Server, Oracle) takes up different amounts of space. However, the space required for saved Opswise Automation Center data is the same; that is, for example, 1,000 tasks consume no more space in MySQL than they do in Oracle.

## Calculating Space Requirements

Following the initialization of the Opswise Automation Center database, the initial table space size will be approximately 60MB.

Based on calculations using data from all task types, each Opswise Automation Center task instance consumes approximately 10KB of database space. You should estimate space requirements for your data based on your expected number of task executions per day and the duration for retaining history and activity data before purging.

## Output Retrieval

An Opswise agent always caches output. Output is stored in the database only if you do one or more of the following:

- Select [Automatic Output Retrieval](#) for a task.
- Create [Email Notifications with output attachments](#) for task.
- [Retrieve output](#) for a task instance.

A retrieved output file of 1K (for example) will require 2KB to 2.5KB of space in the database.