

# Using the vCenter Orchestrator AMQP Plug-In 1.0.1

vCenter Orchestrator 4.1

vCenter Orchestrator 4.2

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# Contents

Using the vCenter Orchestrator AMQP Plug-In	5
Updated Information	7
<b>1 Introduction to the AMQP Plug-In</b>	<b>9</b>
Role of vCenter Orchestrator with the AMQP Plug-In	9
Installing the AMQP Plug-In	9
AMQP Plug-In Functional Prerequisites	9
Install the AMQP Plug-In	10
<b>2 Using the AMQP Plug-In</b>	<b>11</b>
Using the AMQP Plug-In Inventory	11
Configuring the AMQP Plug-In	11
Configuration Workflows	11
Add a Broker	12
Subscribe to Queues	12
Update a Broker	13
Using the AMQP Plug-In Standard Workflows	13
Declare a Binding	14
Declare a Queue	14
Declare an Exchange	15
Send a Text Message	16
Delete a Binding	16
Access the AMQP Plug-In API	17
Exporting and Importing AMQP Configuration	17
Export AMQP Configuration as a Package	17
Import AMQP Configuration from a Package	18
Index	19



# Using the vCenter Orchestrator AMQP Plug-In

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*Using the vCenter Orchestrator AMQP Plug-In* provides information and instructions about configuring and using the VMware® vCenter Orchestrator AMQP plug-in.

## Intended Audience

This information is intended for anyone who is installing and configuring the plug-in, using the API of the plug-in, and using the workflow library. *Using the vCenter Orchestrator AMQP Plug-In* is written for experienced users who are familiar with virtual machine technology, with Orchestrator workflow development, and with AMQP.

For more information about Orchestrator, see [http://www.vmware.com/support/pubs/orchestrator\\_pubs.html](http://www.vmware.com/support/pubs/orchestrator_pubs.html).



# Updated Information

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*Using the vCenter Orchestrator AMQP Plug-In* is updated with each release of the product or when necessary.

This table provides the update history of *Using the vCenter Orchestrator AMQP Plug-In*.

Revision	Description
EN-000664-01	<ul style="list-style-type: none"><li>■ Added information about the new workflow Managing SSL certificates in <a href="#">“Configuration Workflows,”</a> on page 11.</li><li>■ Updated <a href="#">“Add a Broker,”</a> on page 12 with information about SSL certificates.</li><li>■ Updated <a href="#">“Exporting and Importing AMQP Configuration,”</a> on page 17 with information about exporting and importing SSL certificates.</li></ul>
EN-000664-00	First release of AMQP 1.0 plug-in.



# Introduction to the AMQP Plug-In

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The AMQP plug-in allows you to interact with Advanced Message Queuing Protocol (AMQP) servers also known as brokers. You can define AMQP brokers and queue subscriptions as inventory objects by running configuration workflows, and perform AMQP operations on defined objects.

The plug-in contains a set of standard workflows related to managing AMQP brokers and calling AMQP operations.

This chapter includes the following topics:

- [“Role of vCenter Orchestrator with the AMQP Plug-In,”](#) on page 9
- [“Installing the AMQP Plug-In,”](#) on page 9

## Role of vCenter Orchestrator with the AMQP Plug-In

You must use the Orchestrator configuration interface to install the AMQP plug-in. You use the Orchestrator client to run and create workflows and access the plug-in API.

The AMQP plug-in is powered by vCenter Orchestrator. Orchestrator is a development and process-automation platform that provides a library of extensible workflows to manage the VMware vCenter infrastructure and other technologies.

Orchestrator allows integration with management and administration solutions through its open plug-in architecture. AMQP is one example of an open standard for messaging middleware that you can integrate with Orchestrator by using plug-ins.

## Installing the AMQP Plug-In

You must use the Orchestrator configuration interface to install the AMQP plug-in.

### AMQP Plug-In Functional Prerequisites

To be able to install and use the AMQP plug-in, your system must meet the following functional prerequisites.

#### vCenter Orchestrator

Verify that you have a running instance of Orchestrator. You can log in to the Orchestrator configuration interface at [http://orchestrator\\_server:8282](http://orchestrator_server:8282). Version 1.0.1 of the plug-in works with vCenter Orchestrator 4.1 and 4.2.

For information about setting up Orchestrator, see the *vCenter Orchestrator Installation and Configuration Guide*.

## AMQP

Verify that you have access to an AMQP broker.

### Install the AMQP Plug-In

To be able to use the AMQP plug-in, you must download the .vmoapp file containing the plug-in and install it by using the Orchestrator configuration interface.

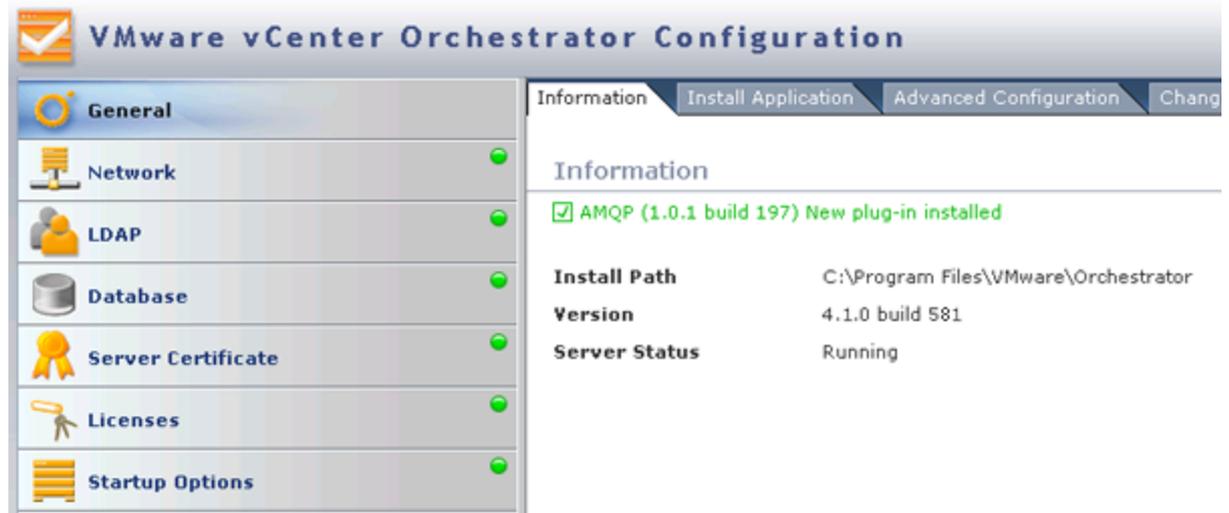
#### Prerequisites

- Verify that you are logged in to the Orchestrator configuration interface at [http://orchestrator\\_server:8282](http://orchestrator_server:8282).
- Verify that you have downloaded the .vmoapp file from <http://www.vmware.com/products/datacenter-virtualization/vcenter-orchestrator/plugins.html>.

#### Procedure

- 1 On the **General** tab, click **Install Application**.
- 2 Upload the AMQP plug-in.
  - a Click the magnifying glass icon.
  - b Select the .vmoapp file to install.
  - c Click **Open**.
  - d Click **Install**.

A message appears after successful installation. The AMQP plug-in is installed without a tab in the Orchestrator configuration interface.



- 3 On the **Startup Options** tab, click **Restart service** to complete the plug-in installation.

## Using the AMQP Plug-In

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The AMQP plug-in workflow library contains workflows that allow you to manage AMQP brokers and run custom AMQP operations.

You can use the **Inventory** view in the Orchestrator client to manage the available AMQP resources. You can use the scripting API of the plug-in to develop custom workflows.

This chapter includes the following topics:

- [“Using the AMQP Plug-In Inventory,”](#) on page 11
- [“Configuring the AMQP Plug-In,”](#) on page 11
- [“Using the AMQP Plug-In Standard Workflows,”](#) on page 13
- [“Access the AMQP Plug-In API,”](#) on page 17
- [“Exporting and Importing AMQP Configuration,”](#) on page 17

### Using the AMQP Plug-In Inventory

The AMQP plug-in exposes all objects in the connected AMQP Brokers in the **Inventory** view. You can use the **Inventory** view to add authorization elements or to run workflows on AMQP objects.

You can enable the **Use contextual menu in inventory** option to display the workflows that are available for an inventory object. When the option is enabled and you right-click an object in the Orchestrator inventory, all available workflows for the object are displayed.

### Configuring the AMQP Plug-In

You must use the Orchestrator client to configure the AMQP plug-in.

#### Configuration Workflows

The Configuration workflow category contains workflows that allow you to manage AMQP brokers.

You can access these workflows from **Library > AMQP > Configuration** on the **Workflows** view in the Orchestrator client.

Workflow Name	Description
Add a broker	Adds an AMQP broker.
Manage SSL certificates	Verifies a host URL, and if required, shows a user interaction message for the approval of SSL certificates. <b>IMPORTANT</b> SSL connections are supported only for the RabbitMQ brokers. The QPID brokers are not supported.

Workflow Name	Description
Reload plug-in configuration	Reloads the plug-in configuration. You can run the workflow when you import new resources containing new broker definitions handled by the plug-in.
Remove a broker	Removes an AMQP broker.
Remove a subscription	Removes an AMQP message subscription.
Subscribe to queues	Creates a new subscription element.
Update a broker	Updates broker properties.
Validate a broker	Validate a broker by attempting to start a connection.

## Add a Broker

You can run a workflow to add an AMQP broker.

### Procedure

- 1 Log in to the Orchestrator client as an administrator.
- 2 Click the **Workflows** view in the Orchestrator client.
- 3 In the hierarchical list of workflows, select **Library > AMQP > Configuration** and navigate to the Add a broker workflow.
- 4 Right-click the Add a broker workflow and select **Start workflow**.
- 5 Provide the information required for the Add a broker workflow.

Option	Action
<b>Name</b>	Type the name of the broker.
<b>Host</b>	Type the address of the host.
<b>Port</b>	Type the port of the AMQP broker service. The default port is 5672.
<b>Virtual host</b>	Type the address of the virtual host. The default value provided is /.
<b>Use SSL</b>	Select whether to use SSL certificates.
<b>Accept all certificates</b>	Select whether to accept all SSL certificates without validation.
<b>User name</b>	Type the user name for the broker.
<b>Password</b>	Type the password for the broker.

- 6 Click **Submit** to run the workflow.

After the workflow runs successfully, the AMQP broker appears in the **Inventory** view.

### What to do next

You can run a Validate a broker workflow. If an error occurs, use the Update a broker workflow to change the broker's properties before validating again.

## Subscribe to Queues

You can run a workflow to create a new subscription elements.

### Prerequisites

- Verify that you are logged in to the Orchestrator client as an administrator.
- Verify that you have a connection to an AMQP broker from the **Inventory** view.
- Verify that the AMQP broker has all queues included in the subscription declared.

**Procedure**

- 1 Click the **Workflows** view in the Orchestrator client.
- 2 In the hierarchical list of workflows, select **Library > AMQP > Configuration** and navigate to the Subscribe to queues workflow.
- 3 Right-click the Subscribe to queues workflow and select **Start workflow**.
- 4 In the **Name** text box, type the name of the queue to display.
- 5 Select the broker to which you want to add the subscription.
- 6 Select all the queues for message subscription.
- 7 Click **Submit** to run the workflow.

After the workflow runs successfully a child of the broker appears in the **Inventory** view.

**What to do next**

You can create a policy.

**Update a Broker**

You can run a workflow to update the broker properties.

**Prerequisites**

- Verify that you are logged in to the Orchestrator client as an administrator.
- Verify that you have a connection to an AMQP broker from the **Inventory** view.

**Procedure**

- 1 Click the **Workflows** view in the Orchestrator client.
- 2 In the hierarchical list of workflows, select **Library > AMQP** and navigate to the Update a broker workflow.
- 3 Right-click the Update a broker workflow and select **Start workflow**.
- 4 Select the broker that you want to update.  
Current properties of the broker appear.
- 5 Edit the properties that you want.
- 6 Click **Submit** to run the workflow.

**Using the AMQP Plug-In Standard Workflows**

The AMQP workflow category contains workflows that allow you to run AMQP operations.

You can access these workflows from **Library > AMQP** on the **Workflows** view in the Orchestrator client.

<b>Workflow Name</b>	<b>Description</b>
Bind	Creates a binding in a specified broker.
Declare a queue	Adds a queue to a specified broker.
Declare an exchange	Adds an exchange to a specified broker.
Delete a queue	Deletes a queue from a specified broker.
Delete an exchange	Deletes an exchange from a specified broker.
Receive a text message	Receives a text message from a specified broker.

Workflow Name	Description
Send a test message	Sends a text message using a specified broker.
Unbind	Unbinds binding in a specified broker.

## Declare a Binding

You can run a workflow to create a binding in a specified broker.

### Prerequisites

- Verify that you are logged in to the Orchestrator client as an administrator.
- Verify that you have a connection to an AMQP broker from the **Inventory** view.

### Procedure

- 1 Click the **Workflows** view in the Orchestrator client.
- 2 In the hierarchical list of workflows, select **Library > AMQP** and navigate to the Bind workflow.
- 3 Right-click the Bind workflow and select **Start workflow**.
- 4 Select a broker in which you want create a binding.
- 5 Provide information about the binding.

Option	Action
Queue name	Type the name of the queue.
Exchange name	Type the name of the exchange.
Routing key	Type the routing key.

- 6 Click **Submit** to run the workflow.

## Declare a Queue

You can run a workflow to add a queue to a specified broker.

### Prerequisites

- Verify that you are logged in to the Orchestrator client as an administrator.
- Verify that you have a connection to an AMQP broker from the **Inventory** view.

### Procedure

- 1 Click the **Workflows** view in the Orchestrator client.
- 2 In the hierarchical list of workflows, select **Library > AMQP** and navigate to the Declare a queue workflow.
- 3 Right-click the Declare a queue workflow and select **Start workflow**.
- 4 Select a broker to which you want to add the queue.
- 5 In the **Name** text box, type the name of the queue to display.
- 6 Select whether the queue is durable.

Option	Description
Yes	The queue is removed after a broker restart.
No	The queue remains after a broker restart.

- 7 Select whether an exclusive client is set for the specific queue.

Option	Description
<b>Yes</b>	Sets one client for this specific queue.
<b>No</b>	Sets more clients for this specific queue.

- 8 Select whether to automatically delete the queue with activated subscription.

Option	Description
<b>Yes</b>	Automatically deletes the queue when no more clients are connected to it. The queue remains until at least one client subscribes to it.
<b>No</b>	Does not automatically delete the queue.

- 9 Click **Submit** to run the workflow.

## Declare an Exchange

You can run a workflow to add an exchange in a specified broker.

### Prerequisites

- Verify that you are logged in to the Orchestrator client as an administrator.
- Verify that you have a connection to an AMQP broker from the **Inventory** view.

### Procedure

- 1 Click the **Workflows** view in the Orchestrator client.
- 2 In the hierarchical list of workflows, select **Library > AMQP** and navigate to the Declare an exchange workflow.
- 3 Right-click the Declare an exchange workflow and select **Start workflow**.
- 4 Select a broker to which you want to add the exchange.
- 5 In the **Name** text box, type a name for the exchange.
- 6 Select the exchange type.

Option	Description
<b>direct</b>	Makes a direct match between the routing key provided in the message and the routing criteria used when a queue is bound to this exchange.
<b>fanout</b>	Forwards any message sent to this exchange to all queues bound to it. Queues that are bound to this exchange contain no arguments.
<b>headers</b>	Queues are bound to this exchange with a table of arguments that can contain headers and values. A special argument named x-match determines the matching algorithm.
<b>topic</b>	Performs a wildcard match between the routing key and the routing pattern specified in the binding.

- 7 Select whether the exchange is durable.

Option	Description
<b>Yes</b>	The exchange remains after a broker restart.
<b>No</b>	The exchange is removed after a broker restart.

- 8 Select whether to automatically delete the exchange with activated subscription.

Option	Description
<b>Yes</b>	Automatically deletes the exchange when no more queues are bound to it. The exchange remains until at least one queue is bound to it.
<b>No</b>	Does not automatically delete the exchange.

- 9 Click **Submit** to run the workflow.

## Send a Text Message

You can run a workflow to send a text message using a specified broker.

### Prerequisites

- Verify that you are logged in to the Orchestrator client as an administrator.
- Verify that you have a connection to an AMQP broker from the **Inventory** view.

### Procedure

- 1 Click the **Workflows** view in the Orchestrator client.
- 2 In the hierarchical list of workflows, select **Library > AMQP** and navigate to the Send a text message workflow.
- 3 Right-click the Send a text message workflow and select **Start workflow**.
- 4 Select a broker from which you want to send a message.
- 5 In the **Exchange name** text box, specify the name of the exchange.
- 6 In the **Routing key** text box, specify the routing key.
- 7 In the **Content** text box, type the message you want to send.
- 8 Click **Submit** to run the workflow.

## Delete a Binding

You can run a workflow to delete a binding in a specified broker.

### Prerequisites

- Verify that you are logged in to the Orchestrator client as an administrator.
- Verify that you have a connection to an AMQP broker from the **Inventory** view.

### Procedure

- 1 Click the **Workflows** view in the Orchestrator client.
- 2 In the hierarchical list of workflows, select **Library > AMQP** and navigate to the Unbind workflow.
- 3 Right-click the Unbind workflow and select **Start workflow**.
- 4 Select a broker to remove the binding from.

- 5 Provide information about the binding.

Option	Action
Queue name	Specify the name of the queue.
Exchange name	Specify the name of the exchange.
Routing key	Specify the routing key.

- 6 Click **Submit** to run the workflow.

## Access the AMQP Plug-In API

Orchestrator provides an API Explorer to allow you to search the AMQP plug-in API and see the documentation for JavaScript objects that you can use in scripted elements.

### Procedure

- 1 Log in to the Orchestrator client as an administrator.
- 2 Access the API Explorer from either the Orchestrator client or from the **Scripting** tabs of the workflow, policy, and action editors.
  - To access the API Explorer from the Orchestrator client, click **Tools > API Explorer** in the Orchestrator client toolbar.
  - To access the API Explorer from the **Scripting** tabs of the workflow, policy, and action editors, click **Search API** on the left.
- 3 To expand the hierarchical list of AMQP plug-in API objects, double-click the **AMQP** module in the left pane.

### What to do next

You can copy code from API elements and paste it into scripting boxes. For more information about API scripting, see the *vCenter Orchestrator Developer's Guide*.

## Exporting and Importing AMQP Configuration

You can transfer the configuration of the AMQP plug-in from one Orchestrator instance to another by creating a configuration package. You can export all plug-in elements, such as hosts and custom workflows, or select the plug-in elements that you want to export.

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**NOTE** You can transfer only the plug-in configuration. The SSL certificates of the hosts and the brokers are not transferred. You can import the SSL certificates manually by starting an update workflow on the host or broker. This starts the certificate import on the new Orchestrator instance.

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### Export AMQP Configuration as a Package

You can export elements of the AMQP plug-in configuration as an Orchestrator package.

#### Prerequisites

Verify that you are logged in to the Orchestrator client as an administrator.

#### Procedure

- 1 Click the **Packages** view in the Orchestrator client.
- 2 From the **Packages** drop-down menu, select **Add package**.
- 3 Type the name of the package and click **Ok**.

- 4 Right-click the package that you added and select **Edit**.
- 5 From the **Resources** tab, select **Insert Resource Element (tree browsing)**.

Option	Action
<b>Add all available AMQP brokers</b>	In the hierarchical list, select <b>Library &gt; AMQP</b> and click <b>Select</b> .
<b>Add a specific AMQP broker</b>	Expand the hierarchical list to <b>Library &gt; AMQP</b> , select an AMQP broker, and click <b>Select</b> .

- 6 (Optional) From the **Workflows** tab, add custom AMQP plug-in workflows.
- 7 (Optional) From the **General** tab, provide a description of the package.
- 8 Click **Save and close**.
- 9 Right-click the edited package and select **Export package**.
- 10 Type the file name, select a location, and click **Save**.

## Import AMQP Configuration from a Package

You can import elements of the AMQP plug-in configuration from an Orchestrator package.

### Prerequisites

- Verify that you are logged in to the Orchestrator client as an administrator.
- Verify that the AMQP plug-in is installed on the Orchestrator instance.

### Procedure

- 1 Click the **Packages** view in the Orchestrator client.
- 2 From the **Packages** drop-down menu, select **Import package**.
- 3 Browse to select the package to import and click **Open**.  
Certificate information about the exporter appears.
- 4 Review the package import details and select **Import** or **Import and trust provider**.

The **Import package** view appears. If the version of the imported package element is later than the server version, the system selects the element for import.

- 5 Click **Import checked elements**.  
The imported package appears in the list of packages.
- 6 Click the **Workflows** view in the Orchestrator client.
- 7 In the hierarchical list of workflows, select **Library > AMQP > Configuration** to navigate to the Reload plug-in configuration workflow.
- 8 Right-click the Reload plug-in configuration workflow and select **Start workflow** to refresh the list of AMQP brokers.

The imported AMQP broker appear in the **Inventory** view.

# Index

## A

- adding an AMQP broker **12**
- AMQP broker **12**
- API access **17**
- audience **5**

## C

- configuration
  - exporting **17**
  - importing **18**
- configuration transfer **17**
- creating new subscription elements **12**

## D

- declare a binding **14**
- declare a queue **14**
- declare an exchange **15**
- delete a binding **16**

## F

- functional prerequisites **9**

## I

- installation **9**
- installation process **10**
- introduction **9**
- Inventory **11**

## O

- Orchestrator **9**

## S

- send a text message **16**

## U

- update a broker **13**
- updated information **7**

## W

- workflow library **11**
- workflows, configuration **11, 13**

