



NetIQ® Aegis® Adapter for VMware® vCenter Server Configuration Guide

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This document provides information about installing and configuring the NetIQ Aegis Adapter for VMware vCenter Server product. This document also covers how to verify a successful installation.

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Overview

The NetIQ Aegis Adapter for VMware vCenter Server (vCenter adapter) allows Aegis to communicate with VMware server and datacenter products to:

- Create, clone, deploy, delete, and migrate virtual machines (VMs)
- Manage snapshots, virtual machine disk files, customization specifications, and peripherals
- Gather information about VMs, resource pools, clusters, and ESX hosts
- Modify VM and host power states and maintenance modes
- Modify resource pool memberships

The vCenter adapter includes a library of workflow activities that Process Authors can use in the Workflow Designer. For more information about activities or activity libraries, see the *Process Authoring Guide for Aegis*.

Product Requirements

The vCenter adapter supports the following VMware Virtual Infrastructure 3 and vSphere products:

- vCenter Server 2.5
- ESX 3 - 3.5
- ESXi 3 - 3.5
- vCenter Server 4
- vSphere ESX 4 or 4.1
- vSphere ESXi 4 or 4.1

The vCenter adapter requires the following software:

- Aegis 2.2
- Microsoft .NET Framework 3.0 or 3.5

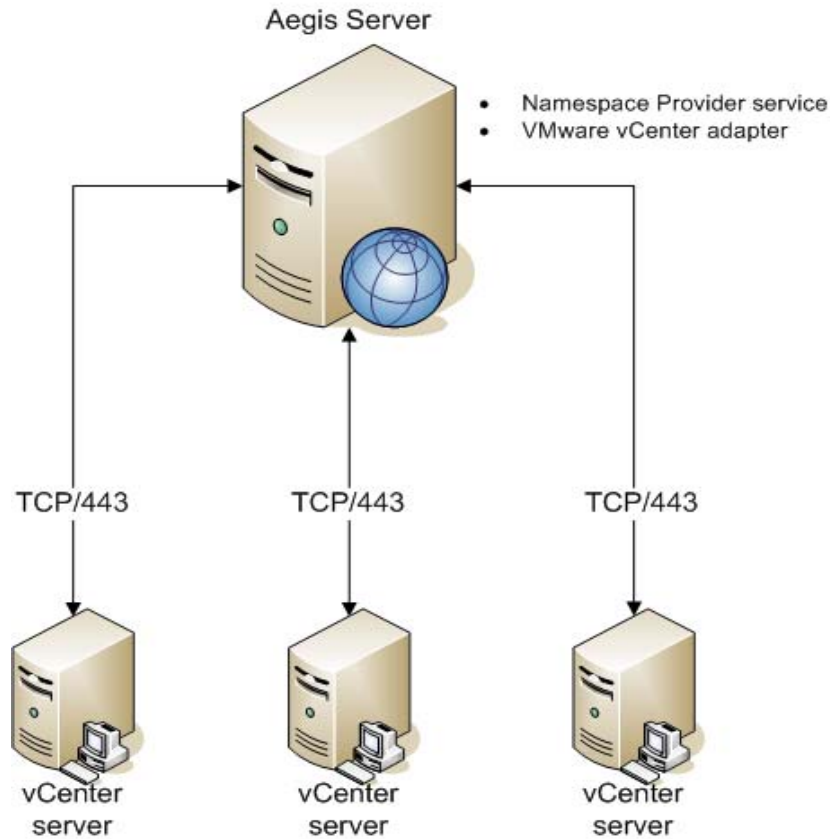
The vCenter adapter requires one of the following operating systems:

- Windows Server 2003 Standard Service Pack 2 (32-bit)
- Windows Server 2003 Enterprise Service Pack 2 (32-bit)
- Windows Server 2008 (32-bit and 64-bit)
- Windows Server 2008 R2

By default, the vCenter adapter uses TCP port 443 to communicate with vCenter servers.

Supported Configurations

The vCenter adapter can communicate with any combination of servers supporting VMware Virtual Infrastructure 3 and vSphere products.



Implementation Overview

The following table provides an overview of tasks to configure the vCenter adapter.

	Steps	For more information, see...
<input type="checkbox"/>	1. Configure the minimum rights and privileges for the VMware vCenter account and Aegis service account.	"Ensuring Minimum Rights and Privileges" on page 3
<input type="checkbox"/>	2. Install the vCenter adapter.	"Installing the vCenter Adapter" on page 3
<input type="checkbox"/>	3. Install the event renderer on the Web Server computer.	"Installing the Event Renderer" on page 5
<input type="checkbox"/>	4. Configure the adapter to connect to additional vCenter servers.	"Configuring Additional vCenter Servers" on page 6
<input type="checkbox"/>	5. Verify the installation was successful.	"Verifying a Successful Installation" on page 6

Ensuring Minimum Rights and Privileges

Before installing the vCenter adapter, configure the following minimum rights and privileges for the VMware vCenter account and the Aegis service account.

When you install the vCenter adapter, you must specify the credentials for the VMware vCenter account. The VMware vCenter account allows the vCenter adapter to communicate with vCenter and run the activities in a workflow. The VMware vCenter account must be a valid account in vCenter with Administrator privileges and the Administrator role.

For more information about the Aegis application credentials, see the *Administrator Guide for Aegis*.

Installing the vCenter Adapter

The vCenter adapter allows Aegis to communicate with VMware Virtual Infrastructure and vSphere products, and allows Process Authors to add vCenter activities to an Aegis workflow. You must install the vCenter adapter on the Aegis Server computer. For more information about installing Aegis, see the *Administrator Guide for Aegis*.

If your Aegis Server computer is part of a cluster, you must install the adapter on the active node first, and then on each passive node.

Installing on an Active Node in a Cluster or on a Non-clustered Computer

These steps guide you through the process of installing the vCenter adapter on one of the following:

- The active node of a cluster
- A single non-clustered computer

To install the vCenter adapter on the Aegis Server computer:

1. Log on to the Aegis Server computer with a local administrator account.
2. Run the setup program from the folder where you downloaded the vCenter adapter.
3. Click **Next**.
4. Accept the license agreement, and then click **Next**.
5. *If the Aegis Server and Web Server are on the same computer in your Aegis environment*, on the Select Components window, select the following options:
 - Adapter
 - Event Renderer
6. *If the Aegis Server and Web Server are on separate computers in your Aegis environment*, on the Select Components window, select **Adapter**.

For more information about installing the event renderer on a separate Web Server computer, see [“Installing the Event Renderer”](#) on page 5.

7. On the Logon Information page of the installation wizard, complete the following steps:
 - a. *If the Aegis Server computer is not part of a cluster environment*, verify the Aegis Server computer name or IP address and the server port.
 - b. *If the Aegis Server computer is part of a cluster environment*, verify the cluster name or IP address and the server port.

- c. Specify the logon credentials for the Aegis service account. If you do not know the logon credentials for the Aegis service account, contact your Aegis administrator.
 - d. *If the Aegis Server computer belongs to a domain*, ensure you specify the correct domain.
 - e. Click **Next**.
8. On the NetIQ vCenter Adapter Connection page of the installation wizard, provide the following information:
 - **vCenter.** Specify the name of the vCenter server to connect to the adapter. You can configure additional servers using the Aegis Adapter Configuration Utility. For more information about adding vCenter servers, see [“Configuring Additional vCenter Servers”](#) on page 6.
 - **Server Name/IP Address.** Specify the full server name or address, such as server01.yourdomain.com. If you do not know the name or address, contact your VMware vCenter administrator.
 - **Port.** Specify the TCP port to communicate with vCenter servers. By default, the vCenter adapter uses port 443.
 - **vCenter Login Information.** Specify an account with administrative privileges for the specified vCenter server. If you do not know the logon credentials for the vCenter account, contact your VMware vCenter administrator.
9. Click **Next**.
10. Follow the remaining instructions in the NetIQ Aegis Adapter for VMware vCenter Server Setup wizard, and then click **Finish**.

Installing on a Passive Node in a Cluster

These steps guide you through the process of installing the vCenter adapter on a passive node in a cluster. You must install the vCenter adapter on the active node of the cluster first.

To install the vCenter adapter on a passive node in a cluster:

1. Log on to the passive Aegis Server node with a local administrator account.
2. Open a command prompt for the folder where you downloaded the vCenter adapter.
3. Type the following command:

```
msiexec /i "VMware Aegis Adapter.msi" /I *V "VMware Aegis Adapter.log"
SKI PCONFIG="TRUE"
```
4. Follow the instructions in the setup program until you finish installing the vCenter adapter, and then click **Finish**.

Installing the Event Renderer

The event renderer for the vCenter adapter provides rendering functionality for the layout of vCenter event details in the Operations Console.

If your Web Server computer is part of a cluster, you must install the event renderer on the active node first, and then on each passive node.

Installing on an Active Node in a Cluster or on a Non-clustered Computer

These steps guide you through the process of installing the event renderer for the vCenter adapter on one of the following:

- The active node of a cluster
- A single non-clustered computer

To install the event renderer on the Web Server computer:

1. Log on to the Web Server computer with a local administrator account.
2. Run the setup program from the folder where you downloaded the vCenter adapter.
3. Click **Next**.
4. Accept the license agreement, and then click **Next**.
5. On the Select Components window, select **Event Renderer**, and then click **Next**.
6. Follow the remaining instructions in the NetIQ Aegis Adapter for VMware vCenter Server Setup wizard, and then click **Finish**.

Installing on a Passive Node in a Cluster

These steps guide you through the process of installing the event renderer for the vCenter adapter on a passive node in a cluster. You must install the event renderer on the active node of the cluster first.

To install the event renderer on a passive node in a cluster:

1. Log on to the passive Web Server node with a local administrator account.
2. Open a command prompt for the folder where you downloaded the vCenter adapter.
3. Type the following command:

```
msiexec /i "VMware Aegis Adapter.msi" /I *V "VMware Aegis Adapter.log"
SKI PCONFIG="TRUE"
```
4. Follow the instructions in the setup program until you finish installing the event renderer, and then click **Finish**.

Configuring Additional vCenter Servers

When the installation is complete, the Aegis Adapter Configuration Utility allows you to configure additional vCenter servers at any time.

To configure an additional vCenter server:

1. Log on to the Aegis Server computer with a local administrator account.
2. In the NetIQ program group, click **Aegis > NetIQ Aegis Adapter Configuration**.
3. In the left pane, click **VMware vCenter Server Adapter**.
4. On the Edit menu, click **New Entry**.
5. Provide the appropriate information, and then click **Test Connection**.
6. *If the VMware vCenter account does not have connection privileges*, create a valid VMware vCenter account for the vCenter adapter to run on that server.
7. Click **Exit**.
8. Restart the NetIQ Aegis Namespace Provider service.

Verifying a Successful Installation

You can verify a successful installation of the vCenter adapter in the following ways:

- Verifying the data source
- Verifying the pre-defined triggering event definitions

After verifying a successful installation, NetIQ recommends you build a simple workflow with one of the activities in the VMware vCenter Adapter Library. For more information about building workflows, see the *Process Authoring Guide for Aegis*.

Verify the Data Source

Aegis connects to the vCenter server you specified during installation as a data source and all related computers as resources.

To verify a successful adapter installation:

1. Start the Aegis Configuration Console.
For more information about starting the Configuration Console, see the *Administrator Guide for Aegis*.
2. In the Navigation pane, click **Resources**.
3. In the left pane, expand **Adapter Resource Hierarchies > VMware vCenter Adapter**.
4. Expand the vCenter server you specified during installation and ensure its associated data resources, such as datacenter and virtual machine folders, display in the left pane.
5. Click a vCenter resource folder and ensure its associated resources display in the Adapter Resources pane.

Verify the Pre-Defined Triggering Event Definitions

The vCenter adapter setup program installs VMware vCenter event types you can use to create triggers and triggering event definitions. The adapter includes the following pre-defined triggering event definitions:

- VMware Cluster DRS Standby Events
- VMware Guest Standby, Reboot, Shutdown Events
- VMware Host Standby Mode Events
- VMware Virtual Machine Power State Events
- VMware VM Deployment Completion

To verify successful addition of the triggering event definitions:

1. Start the Aegis Configuration Console.

For more information about starting the Configuration Console, see the *Administrator Guide for Aegis*.

2. In the Navigation pane, click **Administration**.

3. In the left pane, expand **Triggering Event Definitions**.

4. Verify the Triggering Event Definitions pane displays the pre-defined VMware triggering event definitions.

Understanding Activities

The activities in the vCenter adapter library allow you to manage virtual machines and their hosts and to gather data about vCenter servers through Aegis workflows. For detailed information about each activity, see its related Help. For more information about finding objects to include in your workflows, see [“Finding Objects for Workflows”](#) on page 8.

Workflow Activities Overview

The following table provides a general description of activities you can use to interact with VMware Virtual Infrastructure and vSphere products. For a complete list of activities, see the vCenter adapter library.

VMware actions	Allow you to...
Customization specifications	Import, export, and modify customization specifications you can apply to virtual machines
Guest states, power states, and maintenance modes	Review and modify the guest states, power states, and maintenance modes for VMs and hosts
Snapshots	Create, revert to, and remove snapshots from VMs
Resource attributes	Gather detailed information about VMs, hosts, clusters, and resource pools so you can manage all aspects of your virtual centers
Virtual machines	Clone, deploy, delete, migrate, and modify virtual machines for faster functionality
VMDK files	Generate lists of virtual machine disk (VMDK) files so you can identify and delete orphaned files to reduce wasted space on your servers
VMware Tools	Upgrade VMware tools on virtual machines to improve VM performance

Finding Objects for Workflows

In general, you can enter a locator value for parameters in the vCenter adapter activities. If you do not know the locator for an object, such as a virtual machine, you can use the Find Objects activity in your workflow.

Finding a VMware object in a large environment takes time and can slow your workflows. The vCenter adapter namespace architecture enables you to quickly locate virtual machines and other VMware objects. For example, the namespace includes a folder named `IQVMware_VMUIDFolder` that you can search to ensure an activity quickly finds a server, VM, or VM template.

You can also search for virtual machines and ESX host systems using the custom fields in the VMware Virtual Infrastructure and vSphere products. For example, if you want to find virtual machines owned by a specific person, you can add the Find Objects activity to your workflow and search using the `IQVMware Custom Field Values` attribute.

Verifying Workflow Activity

Most vCenter adapter activities generate specific output. For example, the Modify Virtual Machine activity generates a locator for the modified virtual machine. However, many VMware Virtual Infrastructure and vSphere actions can take a long time to execute. For example, creating a snapshot in a busy vCenter environment could take up to 10 minutes. As a result, VMware creates tasks for tracking action status and completion in the VMware environment. To indicate the adapter successfully initiated the task in vCenter, the vCenter adapter activities mimic VMware's behavior by creating tasks and returning a task key and task locator as output parameters.

The task key and locator do not indicate a task's successful completion. If you want a workflow to wait for a task's completion, place a Wait for Task Completed activity after each vCenter adapter activity that includes a task key or task locator output parameter. When the task completes, the activity allows the workflow to proceed and includes the task's completion status plus any additional success/failure messages.

Customizing the Get Object Properties Activity

The Get Object Properties activity allows you to retrieve information about the properties of a VMware vCenter object such as a cluster, virtual machine, or datastore. The activity includes a list of commonly reviewed properties for each object. If you want to customize the list by either deleting the original set of properties or adding more properties, you can edit the `PropertyDefinition.xml` file.

To customize the Get Object Properties activity:

1. Open the `PropertyDefinition.xml` file, which the vCenter adapter usually installs in `C:\Program Files\NetIQ\Aegis\IQConnect\bin`.
2. In the file, find the Object Class for which you want to add properties. For example, if you want to add properties for an ESX host, find `ObjectClass objectType="HostSystem"`.

3. Enter the details for each property you want to add.

Property name	The VMware data object properties name, such as <code>Annotation</code>
key	The VMware data object properties name plus the VMware object type, such as <code>config.annotation</code>
valueType	The input attribute of the property, such as <code>xsd:boolean</code> , <code>xsd:integer</code> , <code>xsd:long</code> , or <code>xsd:string</code>
displayName	A simplified name of the property, such as <code>VM description</code>
description	A brief description of the property, such as <code>provides a brief description of the virtual machine</code>

Notes

- The property name and key you enter must exactly match the data object properties name and type in VMware vCenter. For more information, see the *VMware Infrastructure SDK Reference Guide*.
 - Although the vCenter adapter does not currently support an array input value type, you can add this type to the XML file. If you enter an array value type, you must also specify the `isArray` attribute as `true` and include specific `arrayIndex` attributes, if any.
-

4. Close and save the file.

5. Before putting the revised file into production, validate the file with a parsing program, such as Microsoft XML Notepad.

6. In the Workflow Designer, close and reopen the Activity Properties window, then browse to the VMware Get Object Properties activity to see the updated properties list.

Uninstalling the vCenter Adapter

You can uninstall the vCenter adapter using one of the following methods:

- Run the setup program from the folder where you downloaded the vCenter adapter.
- In Add/Remove Programs, select NetIQ Aegis Adapter for VMware vCenter Server.

Do not attempt to use the Aegis setup program to uninstall the vCenter adapter.

If you are uninstalling from a cluster environment, ensure the following:

- Uninstall the adapter from all passive nodes first.
- Remove the node from the cluster before you uninstall the adapter.