

VMware vCenter AppSpeed Installation and Upgrade Guide

AppSpeed 1.2

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About This Book

This book, the *VMware vCenter AppSpeed Installation and Upgrade Guide*, describes the procedures for installing the VMware vCenter AppSpeed™ virtual appliance and plug-in, including how to configure the AppSpeed Server and how to deploy the AppSpeed probes on the VMware host machines within the datacenter network.

Intended Audience

This guide is intended for anyone who wants to install the AppSpeed virtual appliance and plug-in on a vSphere™ Server. The vSphere Server is an upgrade from vCenter Server 2.5. All the procedures described in this guide are also relevant when AppSpeed is being installed on a vCenter Server, however some of the user interface terminology and locations of user interface components might differ.

The information is written for experienced Windows or Linux system administrators who are familiar with virtual appliance technology and datacenter operations.

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VMware vCenter AppSpeed Installation

AppSpeed Installation Overview

VMware vCenter AppSpeed provides performance management and service-level reporting for applications running within virtual appliances. AppSpeed analyzes the traffic that flows between end users, Web applications, and back-end servers. This analysis provides visibility into multitier applications. The analysis enables rapid identification of performance problems that originate from inadequate resource allocation and application problems.

AppSpeed is installed on a VMware host machine that resides within the data center network and integrates with the VMware vSphere™ Client. AppSpeed is installed on a centralized server, with one or more AppSpeed probes installed on each host to be monitored.

This chapter includes the following topics:

- [“Installation Workflow”](#) on page 7
- [“Installation Prerequisites”](#) on page 8
- [“Installing and Configuring AppSpeed Server”](#) on page 9
- [“Installing the AppSpeed Plug-In and Probes”](#) on page 11
- [“Multiple AppSpeed Servers”](#) on page 22
- [“Upgrading AppSpeed”](#) on page 24
- [“Extracting SSL Files”](#) on page 23
- [“Uninstalling AppSpeed and Removing the AppSpeed Plug-In”](#) on page 25
- [“Troubleshooting”](#) on page 26

Installation Workflow

AppSpeed is a virtual appliance in Open Virtualization Format (OVF). The AppSpeed plug-in is installed in the vSphere Client.

You perform the installation and setup process in the following stages:

- Import the OVF file and configure AppSpeed Server (see [“Installing and Configuring AppSpeed Server”](#) on page 9)
- Install the AppSpeed plug-in in the Client (see [“Install the AppSpeed Plug-In”](#) on page 11)
- Add a valid AppSpeed license key (see [“Add a License”](#) on page 13)
- Install the AppSpeed probes by using the AppSpeed user interface in the Client (see [“Deploy the AppSpeed Probes”](#) on page 13)
- Verify the successful deployment of the probes (see [“Verify the Installation”](#) on page 15)

To upgrade to the most recent version of AppSpeed, see [“Upgrading AppSpeed”](#) on page 24.

Installation Prerequisites

The following VMware ESX™ and vCenter versions support AppSpeed:

- ESX, version 3.0.x, 3.5.x, or 4.0x
- vCenter Server, version 2.5x, or vSphere 4.0

System Requirements

Review the following system requirements before you install AppSpeed:

- You must have admin-level access to vCenter Server for the automated installation process.
- You must define routable IP addresses for servers and probes.

VMware recommends that you do not use DHCP because the IP address of AppSpeed Server might change after setup is complete. However, if you do use DHCP, you do not need routable IP addresses.

- If HTTPS sites are to be monitored, you require the SSL private keys.
- You must have Administrator privileges on the Client machine to install Adobe Flash Player 10.
- VMware recommends that you synchronize the time on the hosts on which AppSpeed Server and the AppSpeed probes will be installed. If the time is not synchronized, AppSpeed might lose data and experience delays in the mapping process. You can synchronize the time by setting an NTP server in the **Configuring Time** option for each ESX host in vCenter.

Deployment Considerations

When you plan your AppSpeed deployment, consider the following system resource requirements:

- Server
 - 30GB HDD
 - 4GB RAM
 - 2 vCPUs

Virtual CPUs are created as part of the AppSpeed deployment. Two vCPUs require no more than the equivalent resources of a single physical CPU.

- Probes
 - 5GB HDD
 - 0.5GB RAM
 - 2 vCPUs

Virtual CPUs are created as part of the AppSpeed deployment. Two vCPUs require no more than the equivalent resources of a single physical CPU. AppSpeed configures resource limits to ensure that no more resources than are available on the physical CPU are required at any time.

Open Port Requirements

AppSpeed requires that the following ports be open on your firewall:

Table 1. Open Port Requirements

Server Connection	Required Open Ports
AppSpeed Server to vCenter Server	
	TCP port 443 to connect to vCenter Server for the vCenter interface. Port 443 is the vCenter default Web service port, but you can configure a different TCP port in vCenter.
	TCP port 80 to connect to vCenter Server for the vCenter proxy interface. This port is used only during setup to verify that the vCenter proxy is configured correctly. Port 80 is the vCenter default proxy service port, but you can configure a different TCP port in vCenter.
vCenter Server to AppSpeed Server	
	TCP port 80 to connect to AppSpeed Server (Web interface).
AppSpeed Server and probe communication	
	TCP port 1194 to connect to AppSpeed Server (OpenVPN over a TCP connection).
	UDP port 123 to connect to AppSpeed Server (NTP).
	TCP port 22 to connect to the probes if you want to access the probes from outside the VPN.
vSphere to vCenter Server	
	TCP port 80 to connect to vCenter Server (vCenter proxy interface). Port 80 is the vCenter default proxy service port, but you can configure a different TCP port in vCenter.

Installing and Configuring AppSpeed Server

You can install AppSpeed Server on any ESX host that is managed by vCenter Server for the environment you want to monitor. AppSpeed is provided as an OVF file.

Import the OVF File to the vSphere Client

The first step in the installation process is to import the OVF file in the installation package to the vSphere Client. You must have administrator privileges to import the OVF file.

Procedure

- 1 Save the OVF file in the same location as the other files in the installation package, which must be a location that you can access from the vSphere Client.
- 2 In the vSphere Client, select **File > Deploy OVF Template**.
- 3 Select **Deploy from File** and click **Browse** to locate the OVF file.
- 4 Click **Next** and click **Next** again.
- 5 Read and accept the End User License Agreement, and click **Next**.
- 6 Type a name for the virtual appliance server in the **Name** text box.

The name must be unique in the vSphere Client.

- 7 Select the location for the deployed template and click **Next**.
- 8 From the Host/Cluster tree in the upper-right pane, select the ESX host on which to install the virtual appliance, and click **Next**.
The host must be managed by vCenter Server for the environment that you want to monitor.
If you select a cluster, you might be required to select a specific host in that cluster.
- 9 (Optional) Select the datastore on which to store the files for the virtual appliance, and click **Next**.
- 10 From the **Management Network** menu, select a network that has access to the other machines and to vCenter Server to use to manage the probes.
AppSpeed Server uses this network to deploy and communicate with probes deployed on other hosts.
- 11 Click **Next**.
- 12 Review the installation summary and click **Finish** to begin installation.
When the installation is complete, the virtual appliance is added in the vSphere Client.
- 13 In the vSphere Client, select **File > Inventory > Files and Clusters**, and in the Basic Tasks pane click **Power on the virtual appliance** to start the virtual appliance.

Configure AppSpeed Server

You configure AppSpeed Server from the vSphere Client. The first time you access the console you are prompted to configure AppSpeed Server.

As part of the configuration process, AppSpeed performs the following actions in vCenter:

- Creates a snapshot of the AppSpeed Server virtual machine
- Registers the AppSpeed plug-in as a vCenter Client extension
- Registers the redirection of AppSpeed in the vCenter proxy
- Registers AppSpeed Server to start automatically when a host starts up
- Registers the AppSpeed Server power-off settings so that AppSpeed is properly shut down when powering off
- Adds an AppSpeed User role and AppSpeed User privileges that enable access, view and management privileges for the AppSpeed plug-in to be assigned to users
- Reserves CPU allocation to optimize AppSpeed performance

Procedure

- 1 Power on the server virtual appliance and open the AppSpeed Server console.
When the virtual appliance starts, the console is displayed.
- 2 At the login prompt, type **setup**.
- 3 (Optional) If you need to exit the console after you begin the setup, press Ctrl+C to exit the setup, and press Ctrl+C again to reinitiate the setup.
- 4 Press Enter to accept the default value, or specify an alternative value.
The default, or previously defined, value for each parameter appears in brackets.
- 5 (Optional) Select a setting for the network management card.
 - a Type **Y** to use DHCP settings.
 - b Type **N** to set a fixed IP address.
You are prompted to set the IP address, netmask, and gateway for the management card.
 - c (Optional) If you do not want to specify the gateway, type **0.0.0.0**.

- 6 Set the AppSpeed time zone.

If the time zone list does not fit in the console window, press Shift+Page Up/Page Down to view all locations.

- 7 Configure the vCenter IP address, user name, and password when prompted.
- 8 (Optional) Specify the port number.

Type the port number immediately after the IP address, preceded by a colon (:). For example, 10.23.89.89:8080 indicates port 8080 on IP address 10.23.89.89.

- 9 Set a unique namespace for this AppSpeed Server.

The namespace can consist of up to 26 lowercase letters, digits, and dashes.

The namespace is required for user interface connections.

- 10 Press Enter to confirm that you want to complete the setup process.

- 11 (Optional) Press Ctrl+C to reinitiate the setup process and change any parameter values.

If you reinitiate the setup process, the previous values are retained. You can change the values as needed.

- 12 When prompted, review the setup summary and type Y to accept the settings and complete the setup process.

You can install more than one AppSpeed Server. For further information, see [“Multiple AppSpeed Servers”](#) on page 22. When you complete the AppSpeed Server configuration, install the AppSpeed plug-in and probes.

Installing the AppSpeed Plug-In and Probes

Before you can take advantage of the monitoring capabilities of AppSpeed, you must install the AppSpeed plug-in and deploy the AppSpeed probes. You must have vSphere Admin or AppSpeed User privileges to access the AppSpeed plug-in.

Install the AppSpeed Plug-In

You must install the AppSpeed plug-in on each vSphere Client that needs to connect to AppSpeed.

Procedure

- 1 In the vSphere Client, select **Plug-ins > Manage Plug-ins**.
- 2 Select the appropriate AppSpeed plug-in from the **Available Plug-ins** list and click the **Download and install** link.

A progress window indicates the progress until the installation is complete.

- 3 Ensure that the vSphere Client is closed and click **Close** when the installation is complete.
- 4 Reopen the vSphere Client and right-click the AppSpeed plug-in to ensure that it is Enabled.
The AppSpeed icon is added to the **Solutions & Applications** tab on the Home page.

Configure an AppSpeed Plug-In to Directly Access an AppSpeed Server

You can configure an AppSpeed plug-in to connect directly to an AppSpeed Server. You must repeat this process for each client machine.

Procedure

- 1 From the **Plugins** folder, located in the **Virtual Infrastructure Client** folder on the vSphere Client machine, open the **AppSpeed** folder.
- 2 Locate the **settings.config** file and open it in a text editor.
- 3 Change the **<Protocol>** parameter to **https**.

- 4 Change the `<UseProxy>` parameter to **False**.
Setting `False` for this parameter obligates direct access from the client machine to the AppSpeed Server.
- 5 Save and close the `settings.config` file and restart vSphere to apply the changes.
- 6 Connect to AppSpeed Server.
A security warning, related to the address of AppSpeed Server, appears.
- 7 In the Security Warning dialog box, click **View Certificate**, and click **Install Certificate** in the Certificate dialog box.
- 8 Follow the instructions in the Certificate Import wizard.
 - If you have a Windows XP machine, you can either accept the wizard defaults or you can specify the parameters required for Windows Vista and Windows 7 machines.
 - If you have a Windows Vista or Windows 7 machine, select the **Place all certificates in the following store** option and select **Trusted Root Certification Authorities**, then click **OK**.
- 9 Click **Finish**.
- 10 Click **Yes** in response to the question **Do you want to install this certificate?** and at the confirmation prompt, click **OK**.
- 11 Click **Ignore** at the security prompt.
The AppSpeed user interface opens.

Configure Access to AppSpeed Server Through a Proxy

If direct access from the client machine to AppSpeed Server is not applicable, you need to configure AppSpeed to use a proxy.

Procedure

- 1 Open the AppSpeed Server console.
- 2 At the prompt, type `direct_connection_info` and configure AppSpeed to use a proxy.

Remove Direct Access to AppSpeed Server

If direct access from the client machine to AppSpeed Server is not applicable, you can use vSphere Server as a proxy.

Procedure

- 1 From the `Plugins` folder, located in the `Virtual Infrastructure Client` folder on the vSphere Client machine, open the `AppSpeed` folder.
- 2 Locate the `settings.config` file and open it in a text editor.
- 3 Change the `<Protocol>` parameter to **http**.
- 4 Change the `<UseProxy>` parameter to **True**.
Setting `True` for this parameter removes the obligation for direct access from the client machine to AppSpeed Server.
- 5 Save and close the `settings.config` file.
- 6 Restart vSphere to apply the changes.

Define AppSpeed Users

Only users who are assigned the AppSpeed User role or AppSpeed user privileges on the AppSpeed Server virtual machine can access, view, or manage AppSpeed. AppSpeed privileges are automatically added to the Administrator role during AppSpeed Server setup. You can also add AppSpeed privileges to other existing roles.

Procedure

- 1 In the vSphere Client, right-click the appropriate AppSpeed Server in the Inventory tree.
- 2 Select **Add Permission**.
- 3 In the Assign Permissions window, click **Add** to select and add a user or group of users to the Users and Groups pane.
- 4 Select **AppSpeed User** in the list in the Assigned Role pane.
- 5 Click **OK**.

Add a License

You must have an AppSpeed license to monitor servers. You can deploy up to eight probes if you are using an evaluation license.

Procedure

- 1 Click the **Administration** tab, and in the Management Tools pane click **Licensing**.
- 2 Click **Add License**.
- 3 Type the license key provided by VMware in the text box and click **OK**.

The license key is validated and its details are added in the License page.

Deploy the AppSpeed Probes

Before the monitoring process can begin, you must install at least one AppSpeed probe on one or more hosts. Each probe can monitor up to three vSwitches. You can install more than one probe on the same host to monitor additional vSwitches. The probe settings, including the management network, storage device, and monitored vSwitches, are configured as part of the probe installation process.

You can add and remove probes. See [“Install an AppSpeed Probe”](#) on page 14 and [“Delete Probes from Hosts”](#) on page 15.

To modify the probe configuration, see the *VMware vCenter AppSpeed User's Guide*.

To configure the AppSpeed probe to monitor a vNetwork distributed switch, see [“Configure AppSpeed with vNetwork Distributed Switching”](#) on page 17.

The AppSpeed probe deployment process automatically makes the following changes in the vCenter:

- Creates a snapshot of the AppSpeed Server virtual machine if one does not already exist. To save disk space, you can remove the AppSpeed Server virtual machine snapshots after the probe installation is complete.
- Creates the AppSpeed Probes folder if it does not already exist.
- Creates promiscuous port groups for the selected vSwitches.
- Creates a probe by creating a linked clone of AppSpeed Server. AppSpeed Server is cloned as the probe, then the linked clone is deleted. If the linked clone cannot be created, AppSpeed creates a new virtual machine and copies it. The virtual machine of the probe has the appropriate hardware settings, including CPU and memory reservation.
- Reconfigures the probe's cluster so that the probe is not subject to VMware Distributed Resource Scheduler (DRS) and VMware High Availability (HA), ensuring that the probes remain on the host on which they were deployed.
- Powers on the probe.
- Edits and reconfigures the probe's settings.

Install an AppSpeed Probe

You can install a probe on one host at a time, or you can install a probe on multiple hosts at the same time. You can also install more than one probe on the same host.

When you install a probe in AppSpeed, distributed vSwitches do not appear in the Probe Installation window. To monitor these switches, you must configure the AppSpeed probe. See [“Configure AppSpeed with vNetwork Distributed Switching”](#) on page 17.

Procedure

- 1 Click **Home** > **Solutions and Applications** and click the **AppSpeed** icon.
- 2 (Optional) If the **AppSpeed** icon does not appear, verify that the AppSpeed plug-in is enabled in the **Plug-ins** menu.
- 3 Click the **Administration** tab and select **Probes Management**.
- 4 Select the check boxes for one or more hosts or clusters on which to install a probe and click the **Install Probes** button.

A probe is installed on each selected host, regardless of whether another probe is already installed on the host.

When you select the check box for a cluster, the check boxes for each host that it contains are selected. Similarly, when you select a host, the probes already installed on it are selected.

The Probe Installation window displays a separate entry for each host that you select. Each entry appears in a separate pane.

- 5 Configure the probe for each probe entry, as described in [“Configure the Probe for Each Host Entry”](#) on page 14.
- 6 (Optional) To add another probe to a host, click  **Install another probe on this host** at the bottom of the host entry and configure the probe, as described in [“Configure the Probe for Each Host Entry”](#) on page 14.
- 7 When you finish adding host-probe combinations, click the **Install Probes** button.
- 8 Review the installation information, and click **OK**.

Alternatively, click **Back** to return to change any of the settings.

The installation progress is indicated in the Probe Status column in the Probes Management window.

Upon completion, the new probe is added to the <namespace> Probes folder in the vSphere Client. The probe is powered on and set up.

- 9 Delete the AppSpeed Server virtual machine snapshot after you finish deploying all the probes.

Configure the Probe for Each Host Entry

Optionally, you can configure the probe for each host entry that is displayed in the Probe Installation window. Consider using local storage, which enables faster probe deployment.

The probe also connects to the management network you specified, but it does not monitor the network

Prerequisite

If you have only distributed virtual switches on your host, you must first create a temporary vSwitch, and install and deploy a temporary probe.

This means that you must either install a probe to monitor the vSwitch, or install a probe that uses the vSwitch as a management NIC.

Procedure

- 1 Type the name of the probe in the **Probe Name** text box.
If you do not specify a name, AppSpeed Server assigns a default name.
- 2 From the **Storage** menu, select the storage device to which the probe connects.
- 3 From the **Management Network** menu, select the network to use to manage the probes.
 - a Select up to three monitoring vSwitches.
The vSwitches sniff traffic on the configured management network.
By default, the first three available vSwitches are selected.
 - b Select either the **DHCP** or **Static IP** option.
If you select Static IP, you must type values for each of the **IP**, **Network**, and **Gateway** (optional) fields.
- 4 Click **Install Probes**.
- 5 Review the summary and click **OK**.
The probe is installed.

Power Probes On or Off

You can power probes on or off from the Probes Management window.

Procedure

- 1 Click the **Administration** tab, and in the Management Tools pane click **Probes Management**.
- 2 In the Probes Management window, select the check boxes for one or more probes, and click **Power On** or **Power Off**.

Delete Probes from Hosts

If you do not want to monitor the traffic on a specific host, you can remove the probes from that host. If you do not want to monitor specific vSwitches on a host, you can delete the probe that is monitoring those switches.

Procedure

- 1 Click the **Administration** tab, and in the Management Tools pane click **Probes Management**.
- 2 In the Probes Management window, select the check boxes for one or more probes on one or multiple hosts, click **Delete Probe**, and click **OK** to confirm.
The probe is removed from the selected hosts only.

Verify the Installation

You can verify the successful installation and deployment of the probes by checking the probe status in any of the following locations:

- **Recent Tasks** pane of the vSphere Client
- Probes Management window of the AppSpeed user interface
- **Servers** tab or **Transactions** tab of the Unmapped Traffic page

If the probe is successfully installed and deployed, the status of the probe is **Running**. In addition, if active traffic is present on the part of the network that the probe is monitoring, the traffic throughput is reflected accordingly.

The traffic throughput can be 0 if there is no traffic on the monitored vSwitches or if a problem occurs with the installation. If the problem persists and you know that traffic is present, see [“Troubleshooting”](#) on page 26.

View Unmapped Traffic

You can view information about the unmapped servers and transactions detected on the network. Unmapped objects are not yet mapped to a specific server or application. The number of unmapped objects typically decreases as AppSpeed maps the environment.

To view unmapped traffic on HTTP sites that incorporate SSL protection, you must configure the SSL keys for each endpoint where AppSpeed detects SSL traffic. See [“Manage SSL Keys”](#) on page 16.

Procedure

- 1 In the Inventory tree, select **Applications and Servers**.
- 2 On the page selection bar, click **Unmapped Traffic**.
- 3 View the status information for the unmapped traffic.
 - **Server:** Name of the server (**Servers** tab only).
 - **Name:** Name of transaction (**Transactions** tab only).
 - **Endpoint:** IP address and ports used by the server (**Servers** tab only).
 - **Latency:** Average and standard deviation (STDEV) latency rates for the server or transaction.
 - **Hits:** Average number of hits per second for the server or transaction, and the total number of hits in the specified time frame.
 - **Throughput:** Average throughput for the server or transaction, and the total throughput in the specified time frame.
 - **Errors:** Average rate of errors, as a percentage, for the server or transaction.

Manage SSL Keys

For AppSpeed to monitor traffic on HTTPS sites that incorporate SSL protection, you must configure the SSL keys for each endpoint, the IP address and port pair, where AppSpeed detects SSL traffic. AppSpeed supports the configuration and monitoring of SSL keys for HTTPS sites only

View SSL Key Information

You can view the existing SSL key configuration in the AppSpeed user interface. Viewing the key configuration will enable you to decide for which endpoints you want to provide an SSL key.

Procedure

- 1 Click the **Administration** tab, and in the Management Tools pane click **SSL Management**.
- 2 View the secure site endpoints for which AppSpeed cannot monitor traffic without a key.
 - The Pending SSL Endpoints table lists the endpoints for which valid SSL keys are required, including their IP addresses and ports. AppSpeed automatically identifies the SSL endpoints for which keys do not exist.
 - The Monitored SSL Endpoints table lists the endpoints for which valid keys exist in AppSpeed, including the respective server name, where available, and IP address and ports. AppSpeed monitors traffic on these endpoints.

Add an SSL Key

You can assign a key to a pending endpoint to enable AppSpeed to actively monitor its traffic.

If necessary, you can extract the SSL files from the Web server to obtain the key (see [“Extracting SSL Files”](#) on page 23).

Procedure

- 1 In the SSL Management window, select the check boxes for the endpoints in the SSL Pending Endpoints table and click **Add/Update SSL key**.
- 2 Browse to and open the key file.

The key is assigned to the selected endpoints. The endpoint moves from the SSL Pending Endpoints table to the Monitored Endpoints table.

Configure AppSpeed with vNetwork Distributed Switching

When you install a probe in AppSpeed the distributed switches do not appear in the Probe Installation window. You must manually configure AppSpeed to monitor these switches. AppSpeed can monitor one vNetwork Distributed Switch in each distributed virtual port group.

You need to review the following issues before proceeding:

- You must have an existing vSwitch that is not already being monitored by an AppSpeed probe. If you do not have an available vSwitch, you must create a temporary one, as described in [“Creating and Deploying Temporary vSwitches”](#) on page 21.
- Consider whether the management network needs to be connected to the distributed vSwitch, or only to the monitoring functionality
- Consider whether the probe needs to be deployed on a distributed vSwitch or on a Cisco Nexus 1000v switch.

Use the information in [Table 2](#) to determine which procedures you need to perform.

Table 2. Configuring vNetwork Distributed Switching: Procedure Decision Table

Goal	Process	See
Configure AppSpeed to monitor a vNetwork distributed switch	<ul style="list-style-type: none"> ■ Create a distributed virtual port group ■ Configure the distributed virtual port group ■ Configure the probe to monitor the vNetwork distributed switch 	<p>“Create a Distributed vNetwork Port Group” on page 18</p> <p>“Configure the Distributed Virtual Port Group” on page 18</p> <p>“Configure the AppSpeed Probe to Monitor a vNetwork Distributed Switch” on page 19</p>
Create a temporary vSwitch (when there is no available vSwitch for the probe to monitor)	<ul style="list-style-type: none"> ■ Create a temporary vSwitch ■ Deploy a probe on the temporary vSwitch 	<p>“Create a Temporary vSwitch” on page 21</p> <p>“Deploy a Probe on a Temporary vSwitch” on page 21</p>
Configure AppSpeed to monitor Cisco Nexus 1000v switches	<ul style="list-style-type: none"> ■ Install a probe ■ Configure the probe to monitor the Nexus 1000v switch ■ Configure port mirroring 	<p>“Install a probe on a Cisco Nexus 1000V Switch” on page 20</p> <p>“Configure the AppSpeed Probe to Monitor a Cisco Nexus 1000V Switch” on page 20</p> <p>“Configure Port Mirroring” on page 21</p>

Configure AppSpeed to Monitor a vNetwork Distributed Switch

This section describes the basic procedures for configuring an AppSpeed probe to monitor a vNetwork distributed switch in which the creation of a temporary vSwitch is not required.

AppSpeed can monitor vNetwork distributed switches. However, AppSpeed does not directly install a probe to monitor such a switch.

As part of the probe installation, you need to specify an available vSwitch to monitor during the installation process, until the probe is eventually configured to monitor the distributed vSwitch. You also need to create a promiscuous distributed virtual port group, and change the network settings of the probe to monitor the vNetwork distributed switch. As with vSwitches, AppSpeed monitors only the virtual machines on hosts on which the probes are installed.

To deploy a probe, at least one vSwitch must be available on the host for the probe to monitor. If the host does not have any vSwitches configured, or if all other vSwitches are already being monitored by other probes, you must create a new temporary vSwitch before you deploy the new probe. Use the procedures described in [“Creating and Deploying Temporary vSwitches”](#) on page 21.

If you want to configure AppSpeed probes to monitor Cisco Nexus 1000v switches, use the procedures described in [“Configure AppSpeed to Monitor a vNetwork Distributed Switch”](#) on page 18.

You cannot monitor a vSwitch that is already being monitored by another probe.

Create a Distributed vNetwork Port Group

If you deploy a vNetwork Distributed Switch, add a new port group.

Procedure

- 1 In the vSphere Client, select **Home**. On the **Inventory** tab, select **Networking**.
- 2 Create a new port group for the vNetwork Distributed Switch,
 - a Right-click the vNetwork Distributed Switch and select **New Port Group**.
 - b Specify the required parameters in the Create Distributed Virtual Port Group dialog box to create a new port group and click **Finish**.

Configure the Distributed Virtual Port Group

You must configure the vNetwork Distributed Switch ports to work in promiscuous mode so that the AppSpeed probe can monitor the switch.

Procedure

- 1 In the vSphere Client, select **Home**. On the **Inventory** tab, select **Networking**.
- 2 Right-click the relevant port group in the vNetwork Distributed Switch and select **Edit Settings**.
- 3 Select **Security**.
- 4 Set the **Promiscuous mode** to **Accept**.
- 5 Select **VLAN**.
- 6 Set the **VLAN type** to **VLAN Trunking**.
- 7 Set the **VLAN trunk range** to **0-4094**.
- 8 Click **OK**.

Deploy an AppSpeed Probe

You can install a probe on one host at a time, or you can install a probe on multiple hosts at the same time.

When you install a probe in AppSpeed, distributed vSwitches do not appear in the Probe Installation window. To monitor these switches, you must configure the AppSpeed probe. See [“Configure AppSpeed with vNetwork Distributed Switching”](#) on page 17.

Procedure

- 1 In the vSphere Client, select **Home**. On the **Solutions and Applications** tab, click the **AppSpeed** icon.
- 2 (Optional) If the name displayed in the **Connect to** text box is incorrect or the AppSpeed Server name is not in the list, type the correct namespace.
- 3 (Optional) If the **AppSpeed** icon does not appear, verify that the AppSpeed plug-in is enabled in the **Plug-ins** menu.
- 4 Click the **Administration** tab and select **Probes Management**.
- 5 Select the check boxes for one or more hosts or clusters on which to install a probe and click the **Install Probes** button.

A probe is installed on each selected host, regardless of whether another probe is already installed on the host.

When you select the check box for a cluster, the check boxes for each host that it contains are selected. Similarly, when you select a host, the probes already installed on it are selected.

The Probe Installation window displays a separate entry for each host that you select. Each entry appears in a separate pane.

- 6 Click the **Install Probes** button.
- 7 Review the installation information, and click **OK**.

Alternatively, click **Back** to return to change any of the settings.

The installation progress is indicated in the Probe Status column in the Probes Management window.

Upon completion, the new probe is added to the <namespace> Probes folder in the vSphere Client. The probe is powered on and set up.

NOTE If your management network was set to a temporary vSwitch and the probe failed to communicate with AppSpeed Server, an error message appears when the probe deployment completes. The issue is resolved when you perform the following steps, however the error message might continue to appear as failed in the user interface.

- a Right-click the probe name, select **Edit Settings** and specify the management network and monitor network settings as required. For further information, see step 3 in [“Configure the AppSpeed Probe to Monitor a Cisco Nexus 1000V Switch.”](#)
 - b Restart the probe by selecting the probe in the Inventory tree, and pressing CTRL+R.
- 8 Delete the AppSpeed Server virtual machine snapshot after you finish deploying all the probes.

Configure the AppSpeed Probe to Monitor a vNetwork Distributed Switch

After the AppSpeed probe is deployed and set up, you can configure it to monitor a distributed vSwitch.

Procedure

- 1 In the vSphere Client, select **Home**. On the **Inventory** tab, select **Hosts and Clusters**.
- 2 In the Inventory tree, right-click the probe to which the probe is connected in the distributed vSwitch and select **Edit Settings**.
- 3 (Optional) To add the management network to the distributed vSwitch, select **Network adapter 1**.
 - a Under Network Connection, select the **Network label** option, and select the relevant distributed virtual port group, by default, dvPortgroupX.
 - b Verify that both of the **Connected** and **Connect at power on** check boxes are selected and click **OK**.
- 4 Select **Network adaptor 2** and under Network Connection, select the **Network label** option, and select the relevant promiscuous port group.
- 5 Verify that both of the **Connected** and **Connect at power on** check boxes are selected and click **OK**.
- 6 (Optional) Delete the temporary vSwitch.

Configure AppSpeed to Monitor Cisco Nexus 1000V Switches

This section details the processes you must follow to monitor Nexus 1000V switches,

To deploy a probe, at least one Nexus wi1000V switch must be available on the ESX serverhost for the probe to monitor. If the host does not have any switches configured, or if all other switches are already being monitored by other probes, you must create a new temporary vSwitch before you deploy the new probe. See [“Create a Temporary vSwitch”](#) on page 21.

Install a probe on a Cisco Nexus 1000V Switch

You can install a probe on one host at a time, or you can install a probe on multiple hosts at the same time.

Procedure

- 1 In the vSphere Client, select **Home**. On the **Solutions and Applications** tab, click the **AppSpeed** icon.
- 2 (Optional) If the name displayed in the **Connect to** text box is incorrect or the AppSpeed Server name is not in the list, type the correct namespace.
- 3 (Optional) If the **AppSpeed** icon does not appear, verify that the AppSpeed plug-in is enabled in the **Plug-ins** menu.
- 4 Click the **Administration** tab and select **Probes Management**.
- 5 Select the check boxes for one or more hosts or clusters on which to install a probe and click the **Install Probes** button.

A probe is installed on each selected host, regardless of whether another probe is already installed on the host.

When you select the check box for a cluster, the check boxes for each host that it contains are selected. Similarly, when you select a host, the probes already installed on it are selected.

The Probe Installation window displays a separate entry for each host that you select. Each entry appears in a separate pane.

- 6 Click the **Install Probes** button.
- 7 Review the installation information, and click **OK**.
Alternatively, click **Back** to return to change any of the settings.
The installation progress is indicated in the Probe Status column in the Probes Management window.
Upon completion, the new probe is added to the <namespace> Probes folder in the vSphere Client. The probe is powered on and set up.
- 8 Delete the AppSpeed Server virtual machine snapshot after you finish deploying all the probes.

Configure the AppSpeed Probe to Monitor a Cisco Nexus 1000V Switch

After the probe is deployed and set up, you can configure AppSpeed to monitor a Nexus 1000V switch.

Procedure

- 1 In the vSphere Client, select **Home**. On the **Inventory** tab, select **Hosts and Clusters**.
- 2 In the Inventory tree, right-click the probe in the Nexus 1000V and select **Edit Settings**.
- 3 Select the required network adapter.
- 4 From the **Network Connections** menu, select the relevant Nexus port group.
- 5 Verify that both the **Connected** and **Connect at power on** check boxes are selected and click **OK**.

Configure Port Mirroring

You must configure port mirroring on the Cisco Nexus 1000V vSwitch ports so that the AppSpeed probe can monitor a Nexus 1000V vSwitch. For further information, refer to the Cisco documentation.

Procedure

- 1 On The Cisco Nexus 1000V vSwitch, specify the server port to which Network adaptor 2 is connected, to monitor as the source ports.
- 2 On the Cisco Visual Switch Manager, identify the interface on which the AppSpeed probe was added to the port group (for example, Vethernet1) and specify that interface as the destination port.
- 3 (Optional) To add the management network to the distributed vSwitch, select **Network adaptor 1**.
 - a Under Network Connection, select the **Network label** option, and select the relevant distributed virtual port group, by default, dvPortgroupX.
 - b Verify that both of the **Connected** and **Connect at power on** check boxes are selected and click **OK**.

Creating and Deploying Temporary vSwitches

This section details the procedures that you must follow when you need to create temporary vSwitches, for example when no legacy switches are available for the AppSpeed probe to monitor. After a probe has been deployed, VMware recommends that you delete the temporary switch.

Create a Temporary vSwitch

To deploy a probe, at least one vSwitch must be available on the host for the probe to monitor. If the host does not have any vSwitches configured, or if all other vSwitches are already being monitored by other probes, you must create a new temporary vSwitch before you deploy the new probe. If an available vSwitch exists on the host, you do not need to create a temporary switch.

Procedure

- 1 In the vSphere Client, select **Home**. On the **Inventory** tab, select **Hosts and Clusters**.
- 2 Select the destination host on which to install the probe.
- 3 Select **Configuration > Networking**, and in the Virtual Switch view, select **Add Networking Wizard**.
- 4 In the Connection Type window, select the **Virtual Machine** option and click **Next**.
- 5 Select the create a virtual switch option, ensure that none of the check boxes for the NICs are selected, and click **Next**.
- 6 Type a name for the vSwitch in the **Network label** text box and click **Next**.
- 7 Click **Finish**.

Deploy a Probe on a Temporary vSwitch

After you have created a temporary switch because there were not any available vSwitches on the host, you can deploy a probe on it.

Procedure

- 1 In the vSphere Client, select **Home**. On the **Inventory** tab, select **AppSpeed**.
- 2 Click the **Administration** tab and select **Probes Management**.
- 3 Select the check box for the host on which you installed the temporary vSwitch, and click the **Install Probes** button.

The Probe Installation dialog box appears.

- 4 Type the name of the probe in the **Probe Name** text box.
If you do not specify a name, AppSpeed Server assigns a default name.
- 5 From the **Storage** menu, select the storage device to which the probe connects.

- 6 From the **Management Network** menu, select the network to use to manage the probes.
 - a Select the check boxes of up to three monitoring vSwitches.
The vSwitches sniff traffic on the configured management network.
By default, the first three available vSwitches are selected.
 - b Select either the **DHCP** or **Static IP** option.
If you select Static IP, you must type values for each of the **IP**, **Network**, and **Gateway** (optional) fields.
- 7 Click **Install Probes**.
- 8 Review the installation summary and click **OK**.

NOTE If your management network was set to a temporary vSwitch and the probe failed to communicate with AppSpeed Server, an error message appears when the probe deployment completes. The issue is resolved when you perform the following steps, however the error message might continue to appear as failed in the user interface.

 - a Right-click the probe name, select **Edit Settings** and specify the management network and monitor network settings as required. For further information, see step 3 in [“Configure the AppSpeed Probe to Monitor a Cisco Nexus 1000V Switch.”](#)
 - b Restart the probe by selecting the probe in the Inventory tree, and pressing CTRL+R.
- 9 (Optional) Delete the temporary vSwitch.

Multiple AppSpeed Servers

You can centrally manage AppSpeed through a single user interface when more than one AppSpeed Server is installed.

Select a Server and Switch Between Servers

When you activate AppSpeed from the vSphere client with more than one AppSpeed Server installed, you are redirected to a selection screen where you can select which server to connect to.

Procedure

- 1 Click the **Switch Server** link at the top right of the page.
- 2 In the selection screen, type the namespace of the server to which you want to switch.

Limitations when You Use Multiple Servers

The following limitations apply when using multiple servers.

- No central license management exists.
 - You can apply the license key to multiple AppSpeed Servers, as long as the actual number of monitored CPUs does not exceed the number of CPUs defined in your license.
 - The same virtual machine might be monitored by two or more different AppSpeed Servers. As a result, the licenses are counted twice, once on each server. Nevertheless, only the actual number of CPUs that are being monitored are relevant to your AppSpeed license.
- Topology and monitoring information is not shared between the servers. The same application can be mapped in two or more servers. The monitoring data in the two servers might be different because the two servers might detect different traffic. Changes in the configuration of the application, such as names and thresholds, in one server are not reflected in the other.
- One AppSpeed Server can map the management traffic of a different AppSpeed Server as an application.

- When you use the vSphere Client, you cannot connect to AppSpeed Servers that are located on different vCenter Servers in a linked vCenter Server environment. You must use the vSphere Client to log in to each vCenter Server on which AppSpeed Servers are located.

Extracting SSL Files

You can extract the SSL files from the Web server to obtain the SSL keys. The extraction procedure varies according to the type of Web server. Following the extraction, you can upload the key file to AppSpeed Server, as described in [“Add an SSL Key”](#) on page 17.

Extract SSL Files from an Apache Server

You can extract the SSL files from an Apache server.

Procedure

- 1 In the Apache conf directory, open the `http.conf` file.
The filename is commonly `/etc/httpd/conf.d/ssl.conf` or `/etc/httpd/conf/httpd.conf`.
- 2 Locate the `SSLCertificateKeyFile` command on the SSL site.
- 3 Save a copy of the file that appears under `SSLCertificateKeyFile` as `[cluster].key` and transfer it to the vSphere Client machine.

Extract SSL Files from a Microsoft IIS 6.0 Server

You can extract the SSL files from a Microsoft IIS 6.0 server. Files are extracted by exporting the IIS key file. Following the extraction, you can transfer the PFX file to the vSphere Client machine and upload it to AppSpeed Server, as described in [“Add an SSL Key”](#) on page 17.

Procedure

- 1 Select **Start > Programs > Administrative Tools > Internet Information System (IIS) Manager**.
- 2 Expand the `COMPUTERNAME (local computer)` tree in the left pane, then expand the `Web Site` tree.
- 3 Right-click **Default Web Site** and select **Properties**.
- 4 Select the **Directory Security** tab, then select the **Server Certificate** button.
- 5 Select **Next**, select **Export the current certificate to a PFX file**, and select **Next** again.
- 6 Select a file to which the exported certificate and key will be written, and select **Next**.
- 7 Type the password with which the key is to be encrypted.
During the export process, a password is requested to protect the key. If a password is assigned, note the password. It is required when you import the key into AppSpeed.
- 8 Re-type the password in the **Confirm Password** text box and click **Finish**.

Extract SSL Files from a Microsoft IIS 7.0 Server

You can extract the SSL files from a Microsoft IIS 7.0 server. Files are extracted by exporting the IIS key file. Following the extraction, you can transfer the PFX file to the vSphere Client machine and upload it to AppSpeed Server, as described in [“Add an SSL Key”](#) on page 17.

Procedure

- 1 Select **Start Programs > Administrative Tools > Internet Information System (IIS) Manager**.
- 2 Expand the `COMPUTERNAME (local computer)` tree in the left pane and double-click the **Server Certificates** icon in the middle pane.
- 3 Right-click the certificate and select **Export**.
A PFX file is created.

During the export process, a password is requested to protect the key. If a password is assigned, note the password. It is required when you import the key into AppSpeed.

Upgrading AppSpeed

If a new version of AppSpeed is available, you can upgrade to that version.

Overview of the Upgrade Process

The AppSpeed upgrade process uses an ISO image and is fully automated. VMware provides the ISO image. You upgrade AppSpeed by connecting the ISO image with the new version to the AppSpeed Server virtual machine and running a command-line interface (CLI) command. The CLI command performs the following actions:

- 1 Upgrades AppSpeed Server and performs two sequential reboots.
- 2 Sets up AppSpeed Server with the new version, keeping all configurations and monitoring data of the previous version.
- 3 Creates a recovery virtual machine snapshot of the AppSpeed Server virtual machine, to which you can revert at any time.
- 4 Creates a backup copy of all of the configuration and monitoring data to enable the upgrade to restore existing data.
- 5 Distributes the upgraded version to all probes.

You can observe the progress of the AppSpeed Server upgrade and setup processes from the console. You can observe the redeployment of the probes in the AppSpeed user interface.

Upgrade AppSpeed

You upgrade AppSpeed version using the ISO image that VMware provides. The upgrade process reboots AppSpeed Server and recreates all AppSpeed probes. This might take some time.

Procedure

- 1 Save the ISO file to a location on your local disk.
- 2 In the vSphere Client, connect AppSpeed Server to the ISO file.
 - a Select the AppSpeed Server virtual machine in the inventory tree.
 - b Click the **Connect CD/DVD devices** icon and select **Connect to ISO image on local disk** from the menu.
 - c Browse to the location of the ISO file.
- 3 Log in to the AppSpeed Server console as the console user.
- 4 From the default console shell, run the command `upgrade_AppSpeed`.
- 5 Press Enter to run the upgrade script.

After AppSpeed Server boots from the ISO image, it continues the upgrade process, including rebooting and recreating the probes. This process can take up to one hour.

A message appears when the AppSpeed Server upgrade is complete.

- 6 When prompted, disconnect the ISO file in the Client.

The probes are recreated in the new version. You can monitor the redeployment process from the AppSpeed Probes Deployment window.

After the upgrade is complete, verify the redeployment of the probes, as described in [“Verify the Installation”](#) on page 15.

Uninstalling AppSpeed and Removing the AppSpeed Plug-In

To completely remove AppSpeed from your system, you must delete AppSpeed probes, uninstall AppSpeed, remove the AppSpeed plug-in from the available plug-ins list and from the vSphere Client, and remove AppSpeed users.

Procedure

- 1 Click the **Administration** tab, and in the Management Tools pane click **Probes Management**.
- 2 Delete all probes by selecting the check boxes and clicking **Delete Probe**.
If some probes remain, delete them from the vSphere Client,
 - a Power off the virtual machine.
 - b Right-click the machine name and select **Delete from Disk**.
- 3 Delete the promiscuous port groups created by AppSpeed as part of probe deployment,
 - a In the vSphere Client, select a host that has a probe installed, click the **Configuration** tab, and click the **Networking** link.
 - b For each vSwitch, identify and delete any port groups called vSwitch*n* AppSpeed, where *n* is a unique number for the vSwitch name.
 - c Repeat this process for each host on which a probe is installed.
- 4 In the vSphere Client, click **Home > Inventory > VMs and Templates** and delete the <namespace> **Probes** folder from each datacenter in which it exists.
- 5 Disable the AppSpeed plug-in from the available plug-in list.
 - a Connect to your vCenter Extension Manager from the browser at https://<Virtual_Center_IP>/mob/?moid=ExtensionManager.
 - b Select **Unregister Extension**.
 - c Copy the following string into the value text box:
com.vmware.cde.sdk.<namespace>.cliext.<namespace>
 - d Select the **Invoke** method.
 - e Restart the vSphere Client.
- 6 Delete the virtual machine on which AppSpeed Server was deployed from the vSphere Client.
 - a Power off the virtual machine.
 - b Right-click the machine name and select **Delete from Disk**.
- 7 Click **Home > Administration > Roles** and remove **AppSpeed User** privileges, and the **AppSpeed User** role.
- 8 On your client machine, click **Start > Settings > Control Panel > Add or Remove Programs** and delete **VMWare AppSpeed plugin for VI Client**.

Troubleshooting

If you encounter problems when using AppSpeed, use this troubleshooting information.

AppSpeed Setup Errors

You might have problems while setting up AppSpeed.

Failed to Register AppSpeed with vCenter Server

Problem

Setup fails and the following error message appears:

Failed to register AppSpeed with vCenter Server: Unable to find AppSpeed Server on the configured vCenter Server.

Cause

You entered the IP address of a vCenter Server that is not the server on which AppSpeed was installed.

Solution

- 1 Verify the accuracy of the vCenter Server IP address.
- 2 Run setup again and enter the correct IP address.

vCenter Server HTTPS Web Service Port Does Not Work With Port 443

Problem

Setup fails and the following error message appears:

Connection timed out. Verify the vCenter address and try again.

Cause

The vCenter Server HTTPS Web Service port is not configured to work with the default port 443.

Solution

- 1 Check the vCenter Server Web Service port.
- 2 Run setup again and enter <vCenter_IP>:<HTTPS_Port> in the vCenter parameters section.

vCenter Server HTTPS Web Service Port Traffic Is Blocked

Problem

Setup fails and the following error message appears:

Connection timed out. Verify the vCenter address and try again.

Cause

The vCenter Server HTTPS Web Service port is blocked to traffic between the AppSpeed Server and vCenter Server.

Solution

- 1 Verify with IT that the vCenter Server HTTPS Web Service port on the firewall is open between the AppSpeed Server and vCenter Server.
- 2 Run setup again.
- 3 If the problem persists,
 - a Log in to the AppSpeed Server virtual machine as the console user and run `shell`.
 - b Telnet to the vCenter Server IP with the vCenter Server HTTPS Web Service configured to port 443 to verify that the port is open.

Server Unavailable Because Firewall Closed for Port 80**Problem**

The following error message appears:

The remote server returned an error: Server Unavailable

Cause

The vSphere Client uses HTTP to download the AppSpeed user interface from AppSpeed Server. If the firewall between the vSphere Client and AppSpeed Server is closed for port 80, the download fails.

Solution

- 1 Open a Web browser and go to http://<AppSpeed_IP>/static/setup.exe to verify that port 80 is open on the firewall.
- 2 Go to http://<vCenter_IP>:<port>/<AppSpeed_namespace>/static/setup.exe to verify that redirection through the vCenter Server is working correctly.
- 3 If the problem persists, log in to the AppSpeed Server virtual machine as the console user and run the `restart_AppSpeed` command.

AppSpeed User Interface Loading Problems

You might have problems loading the AppSpeed user interface.

Error 404**Problem**

After you click the AppSpeed plug-in **Download and Install** link, the following message appears:

The remote server returned an error: (404) Not Found.

Cause

The AppSpeed plug-in fails to install if the vCenter Server is not configured to work with port 80.

Solution

- 1 Manually download the `setup.exe` file from http://<vCenter_IP>:<HTTPS_Port>/<namespace>/static/setup.exe
- 2 Run the `setup.exe` file.
Close the vSphere Client before you perform the installation.
- 3 On the machine that is running the vSphere Client, go to `C:\Program Files\VMware\Infrastructure\Virtual Infrastructure Client\Plugins\AppSpeed`.
- 4 Open the `Settings.config` file in a text editor.

- 5 Replace the line `<!--Port>80</Port-->` with the line `<Port>HTTP_Port</Port>`.
For example, for a vCenter Server configured with port 8080, use `<Port>8080</Port>`.
- 6 Save and close the file.
- 7 Restart the vSphere Client and enable the AppSpeed plug-in on the **Plugin** tab.

AppSpeed View Does Not Load

Problem

Clicking the AppSpeed icon in the vSphere Client does not load the AppSpeed view.

Cause

A connection to the server cannot be established or proxy settings are incorrect. This type of error is usually preceded by one of the following messages: `Received a connectivity error` or `URL Error received`.

Solution

- 1 Verify with IT that port 80 is open on the firewall.
- 2 Restart the vSphere Client.
- 3 Wait a few minutes for the AppSpeed user interface to load.
- 4 If the user interface still does not load, reinstall the user interface from the plug-in window.

NOTE You do not have to uninstall the user interface before reinstallation.

See [“Install the AppSpeed Plug-In”](#) on page 11.

Unable to Communicate with AppSpeed Server

Problem

The following error appears in the user interface:

Unable to communicate with AppSpeed server: failed to download UI module from `http://<vCenter address>/AppSpeed>`, consult your system administrator.

Cause

An HTTP connection to AppSpeed Server is refused due to certificate authorization issues.

Solution

- 1 In an Internet browser, go to `http://<AppSpeed Server IP>`.
A message might appear indicating that the server’s certificate must be approved before the machine allows HTTP connections.
- 2 Approve the certificate using the Web browser.
- 3 Restart the vSphere Client.
- 4 Click the **AppSpeed** button.
- 5 If the problem persists, go to `http://<AppSpeed Server IP>/<namespace>/static/setup.exe` and download `setup.exe` from AppSpeed Server.
If you succeed, the server is accessible.
- 6 If the problem persists and the `503 Service Unavailable` message appears, log in to the AppSpeed Server virtual machine as the console user and run `restart_AppSpeed` from the console.

Unable to Connect to AppSpeed

Problem

The user interface cannot connect to AppSpeed.

Cause

Storage used by AppSpeed Server was disconnected for a while causing the file system to respond as a read-only file system.

Verify the cause by logging into the console on the AppSpeed virtual machine and running commands such as `start_AppSpeed` or `restart_AppSpeed`. The resulting error message will indicate that the file system is read-only. For example, a message similar to the following one might appear, OS Error: [Error 30] Read-only file system: 'twistd.pid'

Solution

- 1 Validate that the storage is running.
- 2 From the vSphere Client, reboot the AppSpeed Server's virtual machine to reinitialize the file system.

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