Foglight™ for VMware 7.3.0
Installation Guide

owners.

Legend

■ | **WARNING:** **A WARNING icon indicates a potential for property damage, personal injury, or death.**

! | **CAUTION:** **A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.**

i | **IMPORTANT NOTE**, **NOTE**, **TIP**, **MOBILE**, or **VIDEO:** An information icon indicates supporting information.

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Installing and configuring Foglight for VMware

Foglight™ for VMware monitors the health of your virtual system by tracking resource consumption such as CPU, network, and memory consumption for individual ESX® hosts, virtual machines, and other components in your integrated environment. This chapter contains information about system requirements and takes you through the installation procedure, step by step.

> **i** | **IMPORTANT:** See the Foglight for VMware Release Notes for important additional information about this product version.

- Requirements and compatibility
- Installation and setup
- Upgrading Foglight for VMware

Requirements and compatibility

This section describes the components that are required to successfully integrate Foglight™ for VMware into Foglight.

Foglight for VMware for Virtualization, Enterprise Edition

Foglight for VMware is installed with Foglight for VMware for Virtualization, Enterprise Edition. For information about installing Foglight for VMware for Virtualization, Enterprise Edition, see the Foglight for VMware *Installation and Setup Guide* for your target environment. This version of Foglight for VMware is included and supported with version 8.4.0 of Foglight for VMware for Virtualization, Enterprise Edition.

Foglight for VMware Management Server

Foglight for VMware can be used on a Foglight platform to gain in-depth insight into the health of the virtual machine, the server, and the virtual environment as a whole.

Before installing Foglight for VMware, ensure that your Management Server is properly installed and configured. For information on how to install and configure the Management Server, see the *Installation and Setup Guide* and the *Administration and Configuration Guide*. The minimum supported version of the Management Server is 5.7.5.

Foglight for VMware Agent Manager

The Agent Manager component collects data from monitored hosts and sends it to the Management Server. Foglight™ for VMware can monitor host machines remotely. For that reason, the Agent Manager does not need to be installed on each individual host that you want to monitor. The Management Server includes an embedded Agent Manager instance that starts and stops with the server.

One Agent Manager installation per Management Server is often enough, unless additional installations are needed to balance the collection load onto other machines. The minimum supported version of the Agent Manager is 5.8.5.

VMware Performance Agent and Agent Manager configuration

On 64-bit hosts meeting the minimum system requirements, the embedded Agent Manager can be used to run VMware Performance Agents to monitor up to 500 virtual machines. If the total number of virtual machines to be monitored from a single agent host is greater than 500, an Agent Manager should be installed on a separate host.

> **i** | **IMPORTANT:** Foglight for Virtualization, Enterprise Edition Virtual Appliance comes pre-configured to support up to 4,000 virtual machines. If you are using this product, there is no need to follow the configuration procedure described in this section.

If additional cartridges and agents are added to the environment, product performance should be monitored and agents moved off of the embedded Agent Manager to reduce the load.

Table 1. Foglight VMware Performance Agent host system requirements

	Minimum CPU	Minimum Memory	Total Monitored VMs
Windows 64-bit	2^1	4 GB	2000
Linux 64-bit	2^1	4 GB	2000

[1] Additional CPUs may be required for larger environments.

Monitoring more than 4000 virtual machines from a single agent host

The Agent Manager JVM usually requires additional memory to monitor more than 4000 virtual machines. The total number of virtual machines is the total from all vCenters that will be monitored from all VMware Performance agents running on the Agent Manager.

The following calculations are guidelines, not hard and fast rules. Memory requirements can vary greatly from installation to installation with similar VM counts. If insufficient memory is configured, the failure mode is easily recognizable: all agents on the Agent Manager host will go into a broken state after the agent(s) were activated for a short period of time, usually within 24 hours. In addition, the Agent Manager log will contain a line similar to the following:

```
Caused by: java.lang.OutOfMemoryError: Java heap space
```

If this is the case, add memory greater than what is shown in the calculations below, in increments of 512 MB until the agents stabilize.

JVM memory requirements for VMware Performance agents are calculated using the following formula:

```
512 MB + 0.5 MB/VM
```

According to the above formula, monitoring 4000 virtual machines requires 2560 MB of memory:

```
512 MB + 2048 MB = 2560 MB
```

This is the default setting for agents deployed on 64-bit systems.

Similarly, monitoring 8000 virtual machines requires 4608 MB of memory:

```
512 MB + 4096 MB = 4608 MB
```

This requires a change in the default Agent Manager settings.

To change the JVM memory settings:

1   Determine the amount of *additional* memory required. This will be the total from the last step above minus the default value of 2560 MB. In the example above, this is 4608 MB – 2560 MB = *2048 MB*.

2   On the agent machine, open the *baseline.jvmargs.config* file for editing. The file is located in the *<Agent_Manager_home>/state/default/config* directory.

3   Add the following lines to the `memory settings` section:

```
vmparameter.0 = "-Xms2048m";
vmparameter.1 = "-Xmx2048m";
```

> **i** | **NOTE:** If this file has been previously edited, increment the numeric parameters accordingly.

4   Delete the existing deployed negotiation configuration settings directory:

<Agent_Manager_home>/state/default/config/deployments

5   Restart the Agent Manager for these settings to take effect.

Host system recommendations

Dedication

When monitoring larger vCenters, the Agent Manager machine hosting the VMware Performance agents should be dedicated to this task. No other Foglight agent types should run on the host and the host should not run any other applications.

Memory

Regardless of the values set for JVM memory above, Agent Manager never allocates more than 80% of system memory. So the machine hosting the Agent Manager and VMware Performance Agents must have sufficient memory. Beyond the memory requirements of the Agent Manager, a minimum of 2 GB should be free for the operating system. In the example above for 8000 VMs and an Agent Manager memory requirement of 4608 MB, the host should have a minimum of 6656 MB - the greater of:

```
1.25 x 4608 MB = 5760 MB
```

Or:

```
2048 + 4608 MB = 6656 MB
```

If the Agent Manager is configured on a virtual machine, it is recommended that the VM use a memory reservation to ensure maximum performance.

CPU

CPU usage on the Agent Manager host is relatively low most of the time. However, usage peaks dramatically during the performance metric collection. This is normal and expected. CPU utilization consistently over 50% is an indication that additional processing power is required. As with memory, usage can vary between different installations with similar numbers of virtual machines. The following guidelines should be followed.

Table 2. CPU usage guidelines

Up to 1000 VMs	2 CPUs
1000 – 4000 VMs	4 CPUs
4000+ VMs	add 1 CPU per 1000 VMs – round up when necessary

When the Agent Manager and VMware Performance agents are running on a virtual machine, the VM should be configured with CPU reservation whenever possible to ensure best performance. Lack of processing power on the

Agent Manager manifests in missed collections and gaps in the data usually noticeable in various graphs throughout the Foglight for VMware dashboards.

Monitored hosts

Foglight™ for VMware supports VMware® vSphere® and VMware vCenter® Server versions 5.0 and later. Foglight for VMware also provides basic monitoring support for vCenter 6.0, but some advanced vCenter 6.0 features such as long distance vMotion® (Cross vCenter vMotion) will not be fully supported until a future release of Foglight for VMware.

> **i** | **IMPORTANT:** To successfully monitor a vCenter, you must open the port 443 on the vCenter system to allow HTTPS (port 443) traffic from the Agent Manager host to the monitored vCenter.

Installation and setup

Installing Foglight™ for VMware involves several tasks.

First, install Foglight for VMware, and the Agent Manager (if multiple instances are required) and configure the remote host to allow the collection of data. Next, install Foglight for VMware on the Management Server and deploy the agent package. As the final step, you create agent instances, configure their properties, activate them, and start their data collection. For details, see the following sections:

Installing the Foglight for VMware Management Server

Install the Foglight Management Server using the installer for your platform. For complete information, see the Foglight for VMware *Installation and Setup Guide* set.

Installing the Foglight for VMware Agent Manager

The Management Server includes an Agent Manager which can be used to remotely monitor hosts. To balance the collection load, you can choose to install the Agent Manager on additional hosts. For complete information, see the *Agent Manager Guide.*

Installing and enabling Foglight for VMware

> **NOTE:** Foglight™ for Virtualization, Enterprise Edition comes with Foglight for VMware pre-installed. The information provided in this section is only applicable to Foglight Management Server installations.

Foglight for VMware is distributed in the following CAR files:

- *DRP-5_7_0.car*
- *Virtual-VMware-5_7_0.car*
- *VMware-Admin-5_7_0.car*

> **NOTE:** *VMware-Admin-5_7_0.car* file provides access to VMware administrative actions through the VMware Explorer's **Administration** tab. For more information about the VMware Explorer, see the *Foglight for VMware User and Reference Guide*.

Installing and enabling these cartridges on the Management Server add the VMware® capabilities to your Foglight environment and makes their components available for use. When a cartridge is installed and enabled, all of its components become part of the Management Server.

The following procedure describes the process of installing and enabling the available cartridges using the browser interface. Another way to install and enable Foglight cartridges is through the `fglcmd` command-line interface. For more information about the available `fglcmd` commands, see the *Command-Line Reference Guide*.

To install and enable the available cartridges:

1   On the navigation panel, under **Dashboards**, choose **Administration > Cartridges > Cartridge Inventory**.

2   Install the Foglight for VMware CAR files, in this order:

- *DRP-5_7_0.car*
- *Virtual-VMware-5_7_0.car*
- *VMware-Admin-5_7_0.car*

    a   To install a CAR file, on the Cartridge Inventory dashboard, click **Install Cartridge**.

          The **Install Cartridge** dialog box appears.

Figure 1. Install Cartridge dialog box
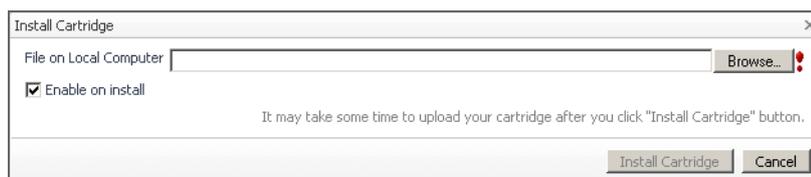
    b   In the **Install Cartridge** dialog box, click **Browse**, and navigate to the CAR file.

    c   Ensure that the **Enable on install** check box is selected.

    d   Click **Install Cartridge**.

          The **Processing** message box appears.

Figure 2. Processing message box
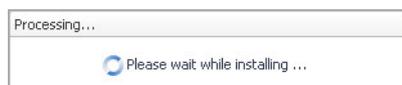
          After a few moments, the **Operation(s) Complete** message box appears, indicating a success.

Figure 3. Operation(s) Complete message box
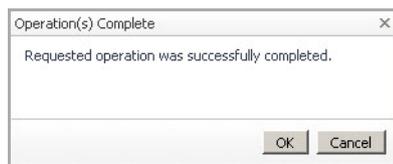
  e   Click **OK** to close the **Operation(s) Complete** message box.

3   Observe the list of installed cartridges.

Figure 4. Installed cartridges
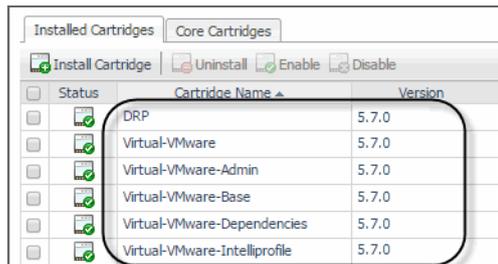
From here, you can proceed to deploying the VMware Performance Agent package. For more information, see
Deploying VMware Performance Agent packages to monitored hosts.

Deploying VMware Performance Agent packages to monitored hosts

Foglight™ for VMware uses VMware Performance Agent instances to collect information from a vCenter®.
Installing and enabling Foglight for VMware on the Management Server makes its VMware Performance Agent
package available for deployment.

VMware Performance Agent uses the Agent Manager for communication with the Management Server. Foglight
for VMware can monitor Virtual Center machines remotely. For that reason, the Agent Manager does not need to
be installed on each individual host that you want to monitor. It is typically installed on one machine; some
scenarios may require multiple Agent Manager installations to balance the collection load.

Deploy the VMware Performance Agent package to the applicable Agent Manager instances. In some
installations, the Management Server already has the VMware Performance Agent deployed to its embedded
Agent Manager instance. Deploying the package is only required if you plan to use additional Agent Manager
instances.

The following procedure describes the deployment process using the Agent Status dashboard. This administrative
dashboard is useful for deploying the agent package one host at a time. Alternatively, for deploying the VMware
Performance Agent package to multiple hosts, you can use the Agent Hosts dashboard. For more information, see
the *Administration and Configuration Guide*.

Another way to deploy agent packages is through the `fglcmd` command-line interface. For more information
about the available `fglcmd` commands, see the *Command-Line Reference Guide*.

To deploy the VMware Performance Agent package:

1   Log in to the Foglight browser interface.

2   On the navigation panel, under **Dashboards**, click **Administration > Agents > Agent Status**.

    The Agent Status dashboard appears in the display area.

Figure 5. Agent Status dashboard
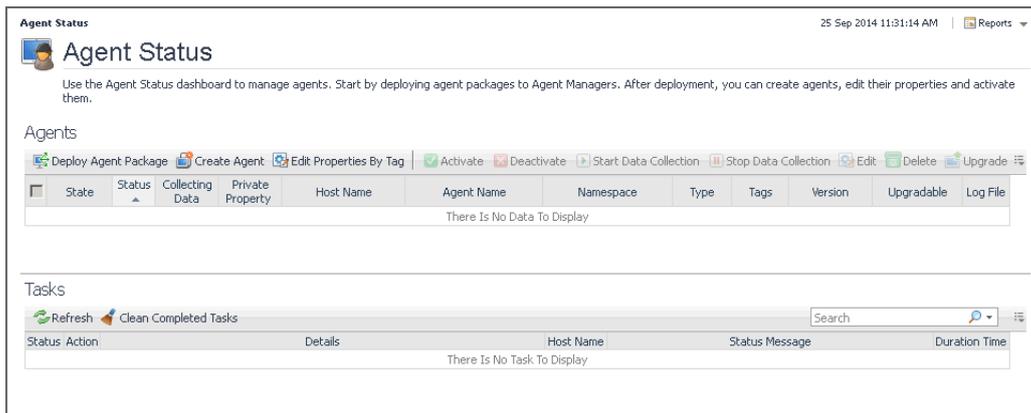
3   On the Agent Status dashboard, click the **Deploy Agent Package** button in the lower-left corner.

The **Deploy Agent Package** wizard appears.

Figure 6. Deploy Agent Package wizard
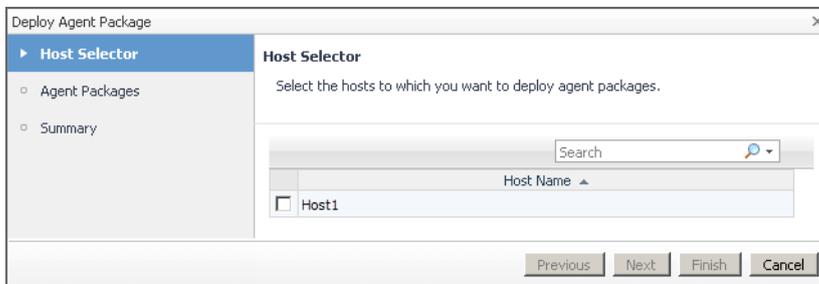
4   Specify the monitored host to which you want to deploy the VMware Performance Agent package.

In the **Deploy Agent Package** wizard, on the **Host Selector** page, select the system on which the Agent Manager is running, and click **Next**.

If the system name does not appear in the list, check that its Agent Manager is active and connected to the Management Server.

The **Deploy Agent Package** wizard refreshes, showing the **Agent Packages** page.

Figure 7. Agent Packages page
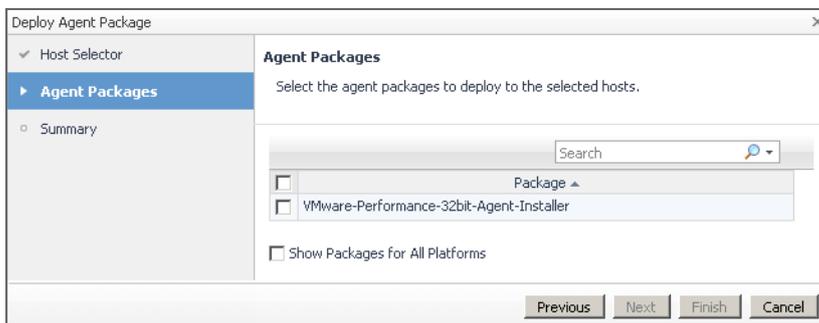
5   In the **Deploy Agent Package** wizard, on the **Agent Packages** page, select **VMware-Performance-64bit-Agent-Installer**, and click **Next**.

The **Deploy Agent Package** wizard refreshes, showing the **Summary** page.

Figure 8. Summary page
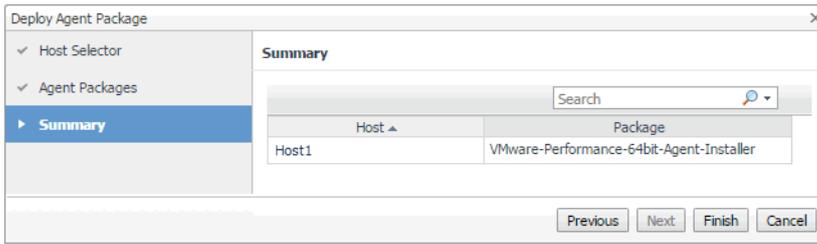
6   In the **Deploy Agent Package** wizard, on the **Summary** page, verify that the host name and package are correct, and click **Finish**.

The **Deploy Agent Package** wizard closes, and the Agent Status dashboard refreshes, showing in the **Tasks** area that the **Deploy Agent Package** task is in progress. After a few moments, a green icon appears in the **Status** column, indicating a successful deployment.

Figure 9. Deployment task successful
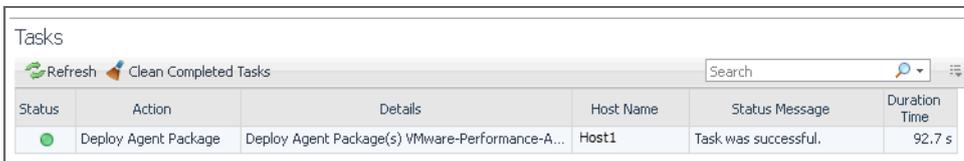
If agent deployment is not successful, there are several things you can do to troubleshoot the deployment failure. For more information, see the online help for the Agent Status dashboard.

From here, you can proceed to grant privileges to the VMware Performance Agent for collecting data from the monitored host. For more information, see .

Enabling VMware Performance Agents to collect data from a Virtual Center

Foglight™ for VMware uses the VMware Performance Agent to collect information from monitored environments. Each VMware Performance Agent can monitor an entire Virtual Center. To enable the agent to monitor your virtual environment, you must grant the agent privileges for accessing the Virtual Center and collecting data from it.

> **i**   **IMPORTANT:** Follow this procedure only if your environment does not include Foglight for Resource Optimization.

Configure these privileges on the Virtual Center using the VMware® Virtual Infrastructure Client.

First, you create a role and assign it privileges for browsing datastores, viewing and terminating sessions, and modifying performance intervals. Next, you assign that role to a user account that you want the VMware Performance Agent to use for accessing the Virtual Center. You will associate the selected user account with the VMware Performance Agent instance in a later step, when you configure the VMware Performance Agent properties (see).

Figure 10. VMware Virtual Infrastructure Client
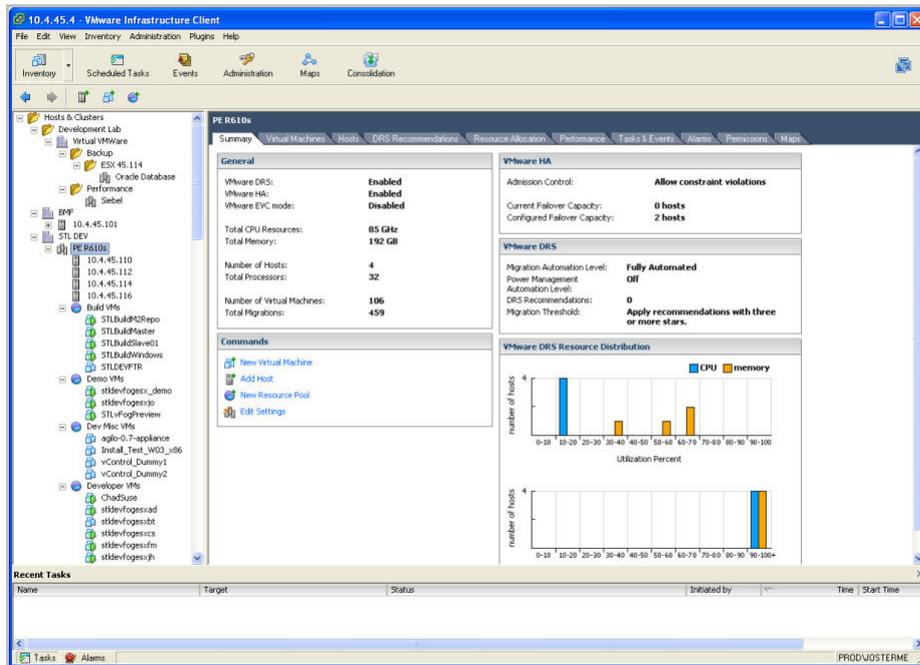
To grant a VMware Performance Agent privileges for collecting data from a Virtual Center:

1   In the VMware Virtual Infrastructure Client, on the tool bar, click **Administration**.

    The Administration screen appears.

Figure 11. Administration screen
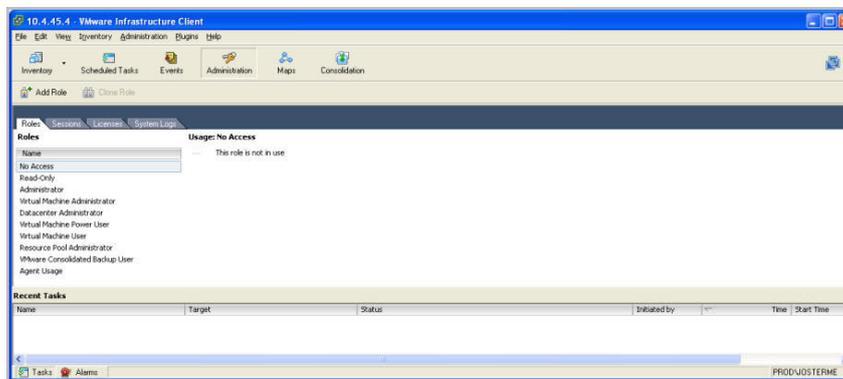
2   Right-click a role and choose **Add** from the shortcut menu that appears.

    The **Add Role** dialog box appears.

Figure 12. Add Role dialog box
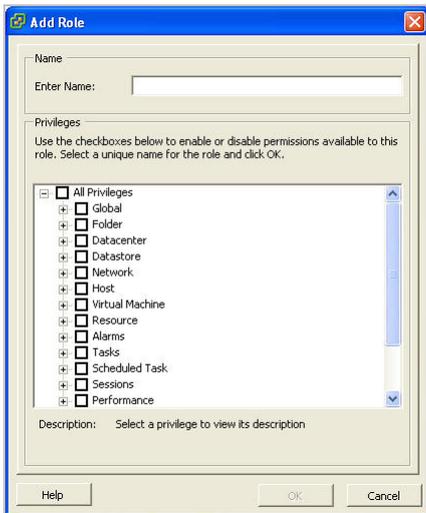
3   In the **Add Role** dialog box, in the **Enter Name** box, type the name of the role you want to add.

4   Select the following privileges:

  ▪   Datastore > Browse Datastores

  ▪   Sessions > View and Terminate Sessions

  ▪   Performance > Modify interval

5   **Important**. If you are using Foglight for Resource Optimization, you must include additional privileges to this role. For more information, see the Foglight for Resource Optimization *User Guide*.

6   Click **OK**.

    The **Add Role** dialog box closes.

7   In the VMware Virtual Infrastructure Client, on the toolbar, click **Inventory**.

    The Inventory screen appears.

Figure 13. Inventory screen
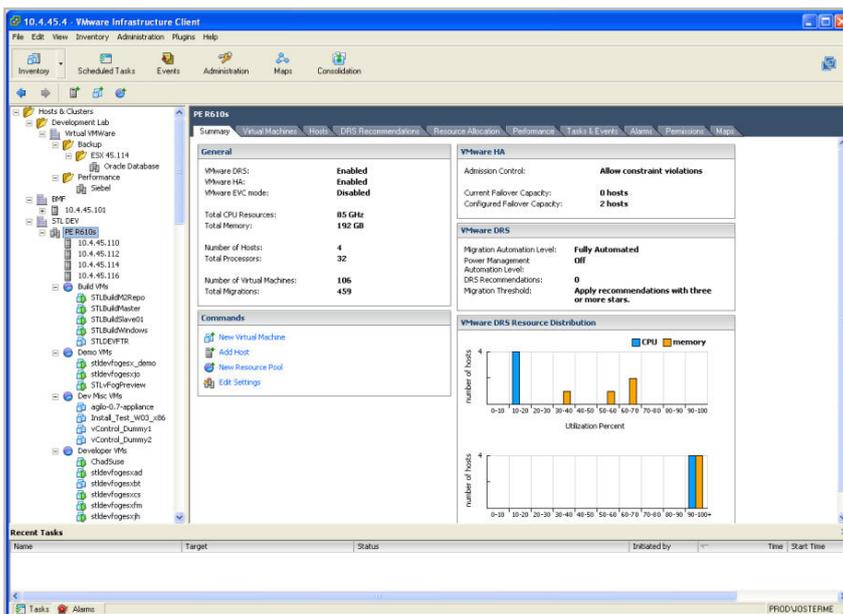
8   In the left pane, right-click **Hosts & Clusters**, and choose **Assign Permissions** from the shortcut menu that appears.

The **Assign Permissions** dialog box appears.

Figure 14. Assign Permissions dialog box
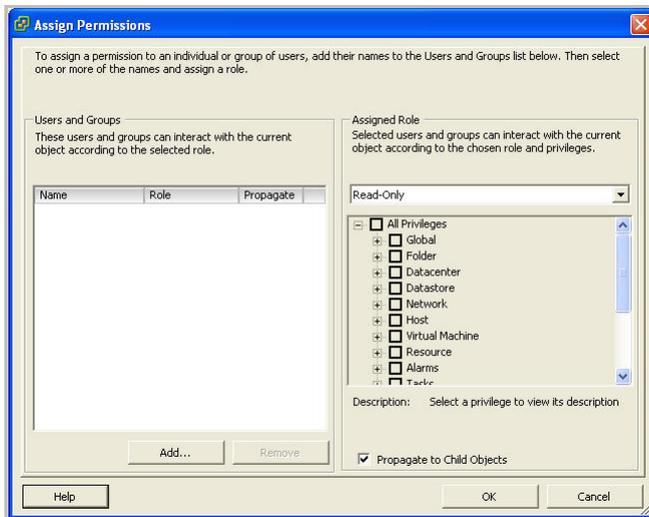
9   In the **Assign Permissions** dialog box, in the **Assigned Role** area, select the role you just created.

10 In the **Users and Groups** area, click **Add**.

The **Select Users** dialog box appears.

Figure 15. Select Users dialog box
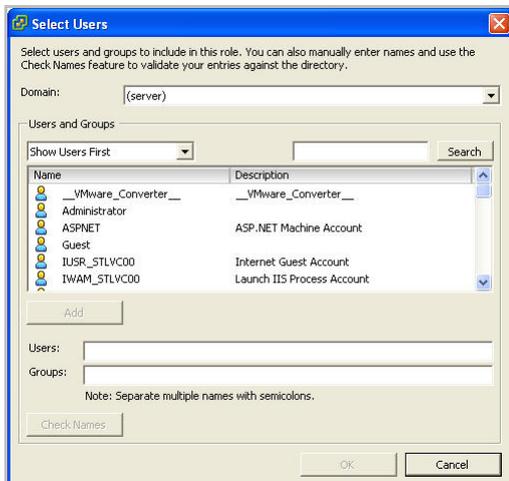
11 Assign the selected role to a user account that you want the VMware Performance Agent to use for accessing the Virtual Center, and click **Add**.

12 Click **OK**.

The **Select Users** dialog box closes.

Configuring VMware Performance Agents for data collection

Foglight™ for VMware uses the VMware Performance Agent to collect information from monitored environments. Creating a VMware Performance Agent instance creates the agent process on the Agent Manager host. Activating the VMware Performance Agent starts that agent process, while starting an agent instance's data collection enables the agent to start collecting data from the monitored Virtual Center and to send it to Foglight for VMware.

When the VMware Performance Agent package is successfully deployed, create one or more agent instances, activate them, and start their data collection. To perform these steps in a single operation for one or more monitored hosts, use the **Administration** tab of the VMware Environment dashboard.

Each VMware Performance Agent monitors a single Virtual Center. When you create a VMware Performance Agent instance and the Agent Setup wizard determines that the Virtual Center was not previously monitored by this Foglight instance, it starts importing historical data into Foglight. This data is not immediately available as it takes some time to collect it. This process can import data collected over 30 days or less, depending on the amount of data available in the Virtual Center. This allows you to explore VMware metrics as soon as the data is imported, instead for waiting for the agent to collect some data from the Virtual Center. The **Metric History** column in the **Agents** table indicates the progress of the historical data import. Historical data is intended for charting, trending, and general presentation purposes. It does not cause any alarms to fire.

To import Virtual Center historical data, the minimum recommended Virtual Center Statistics Levels must be at least 2 in the samples that are collected for one month for the agent to populate 30 days of historic collections. The following table lists the minimum Statistics Levels for all collection frequencies. For more information about Virtual Center Statistics levels, see your VMware® documentation.

Table 3. Collection Intervals

Collection Interval	Collection Frequency	Statistics Level
1 Day	5 Minutes	1
1 Week	30 Minutes	1
1 Month	**2 Hours**	**2**
1 Year	1 Day	1

> **ℹ️ IMPORTANT:** Before creating your first VMware Performance agent, you must configure a Virtual Center user with sufficient privileges. For more information, see Enabling VMware Performance Agents to collect data from a Virtual Center on page 12.

To create, activate VMware Performance Agent instances, and start their data collection:

1 Log in to the Foglight browser interface.

2 On the navigation panel, under **Dashboards**, choose **VMware > VMware Environment**.

3 On the VMware Environment dashboard that appears in the display area, open the **Administration** tab.

Figure 16. Administration tab
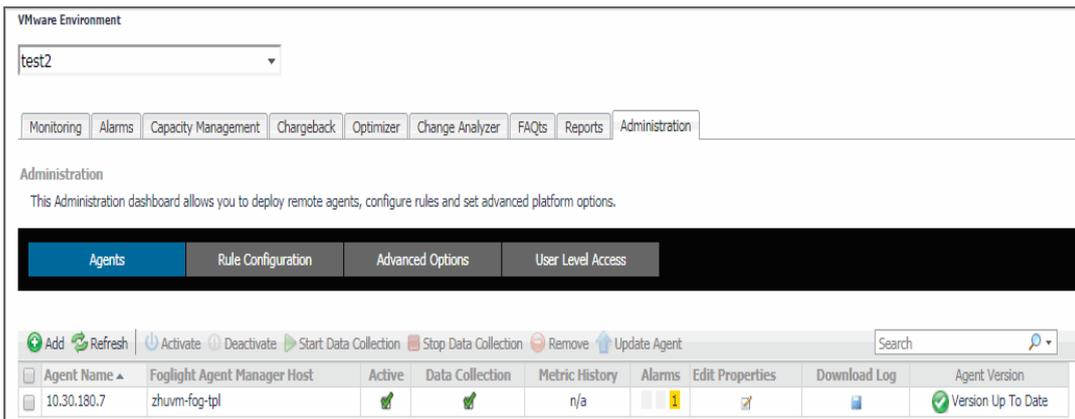
4   Launch the Agent Setup wizard. In the **Agents** area, click **Add**.

The **Agent Setup Wizard** appears with the **Select an Agent Host** page open.

Figure 17. Agent Setup Wizard
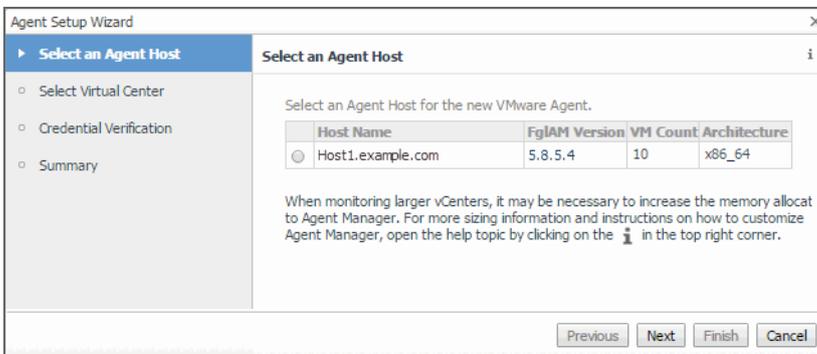
5   Select the host machine running the Agent Manager that you want to manage the VMware Performance Agent you are about to create, and click **Next**.

The **Agent Setup Wizard** refer shes, showing the **Select Virtual Center** page.

Figure 18. Select Virtual Center page
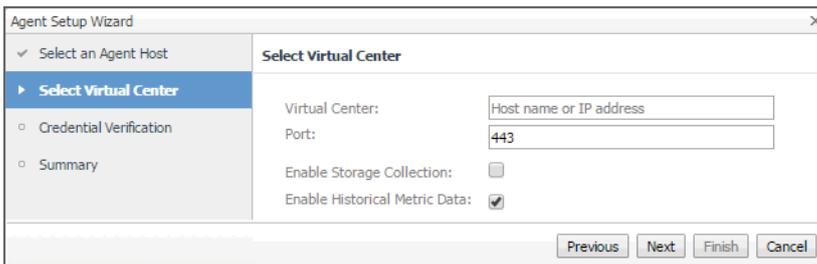
6   Specify the Virtual Center that you want to monitor.

a   In the **Virtual Center** box, type the fully qualified name of the host on which the Virtual Center is running.

b   In the **Port** box, type the port number of the host running the Virtual Center that will be used by the VMware Performance Agent to connect to the Virtual Center.

c   If you want to enable the VMware Performance Agent to collect the Foglight for Storage Management data, select the **Enable Storage Collection** check box. Foglight for Storage Management can help you optimize the VMware environment by monitoring virtual storage and its

underlying physical storage components. For more information about this product, see the Foglight for Storage Management documentation.

d If you want to import historical data, select the **Enable Historical Metric Data** check box. This data is not immediately available as it takes some time to collect it. This process can import data collected over 30 days or less, depending on the amount of data available in the Virtual Center. Selecting this option allows you to explore VMware metrics as soon as the data is imported, instead for waiting for the agent to collect some data from the Virtual Center.

e Click **Next**.

The **Agent Setup Wizard** refreshes, showing the **Credential Verification** page.

Figure 19. Credential Verification
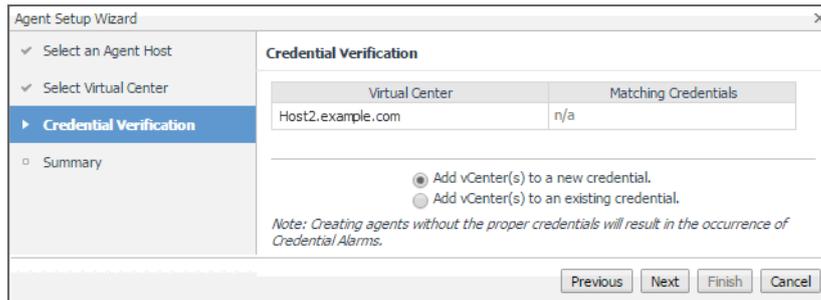
7 Specify user credentials the VMware Performance Agent needs to log into tho Virtual Center host. Select one of the following options:

> **i** | **IMPORTANT:** The Virtual Center user account must have sufficient privileges. For more information, see Enabling VMware Performance Agents to collect data from a Virtual Center on page 12.

- **Add vCenter(s) to a new credential**: Select this option if you want to create a new credential for the selected vCenter. Click **Next** and continue to Step 8.

- **Add vCenter(s) to an existing credential**: Select this option if you want to use an existing credential for the selected vCenter. This option is suitable if an existing credential has the information needed to access the vCenter. Click **Next and** continue to Step 9.

For complete information about Foglight credentials, see the *Administration and Configuration Help*.

8 **Creating a new credential only**.

Figure 20. Create New Credential
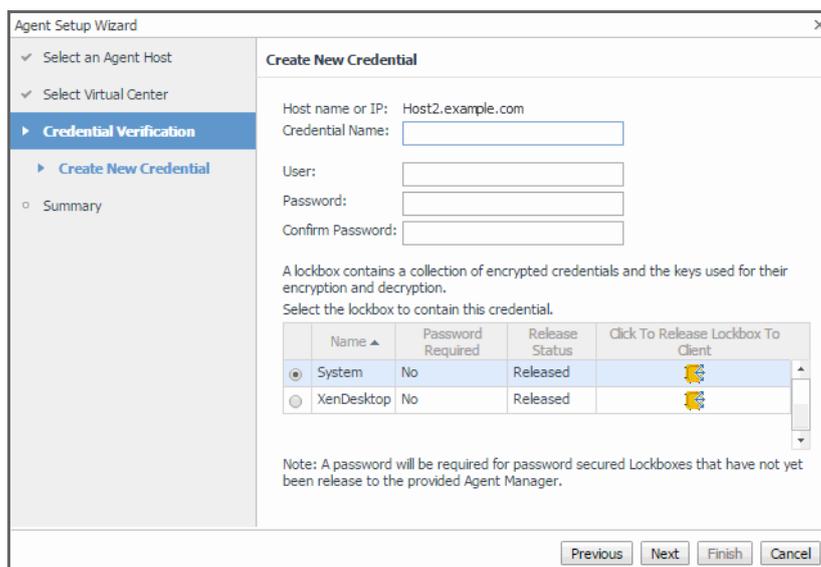
a   Specify the following information:

  ▫ **Credential Name**: Type a name that uniquely identifies the credential.

  ▫ **User**: Type the vCenter user name.

  ▫ **Password**: Type the vCenter password.

  ▫ **Confirm Password**: Type the vCenter password.

b   Select a lockbox in which you want to keep the credential. A lockbox can be used to group credentials for access and/or security. In smaller Foglight installations, you can use the default **System** lockbox.

c   Click **Next**.

   The **Summary** page appears.

Figure 21. Summary
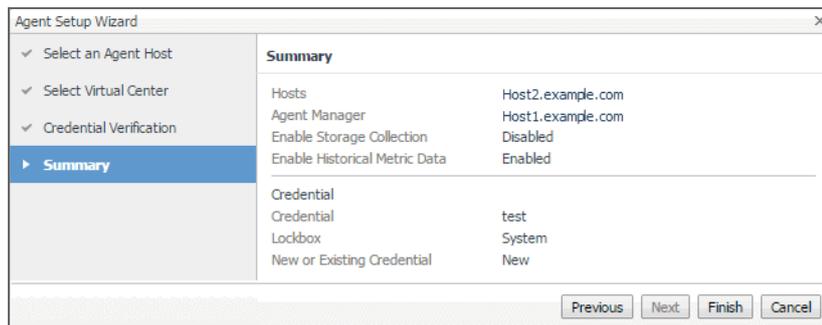
d   Click **Finish**.

   The **Agent Setup Wizard** closes, and the **Agents** area refreshes, showing a newly created VMware Performance agent instance.

9   **Using an existing credential only**.

Figure 22. Select Existing Credential
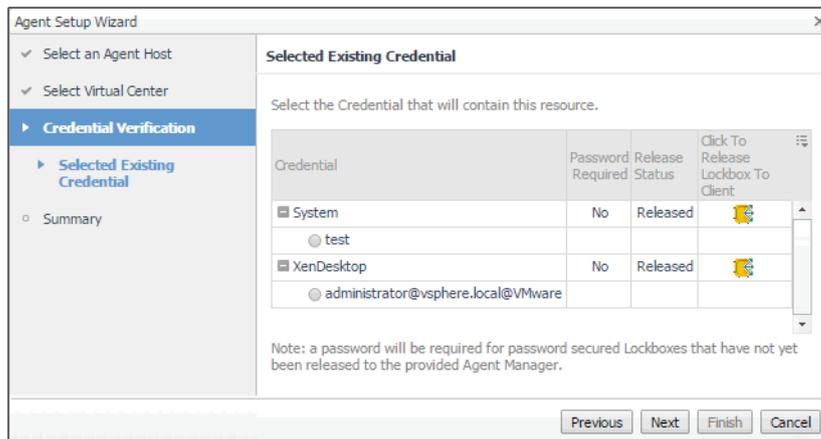
a   Select an existing credential that you want to use to access the vCenter.

b   Click **Next**.

   The **Summary** page appears.

Figure 23. Summary
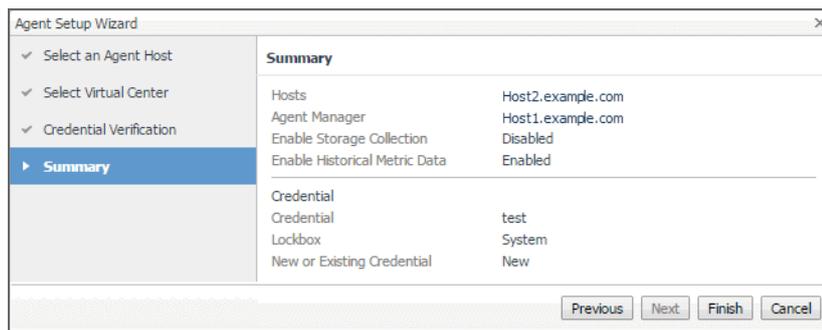
c   Click **Finish**.

The **Agent Setup Wizard** closes, and the Agents area refreshes, showing a newly created VMware Performance agent instance.

Using an alternative method to create and configure VMware Performance Agents

The following procedure describes the process of creating and activating VMware Performance Agent instances and starting their data collection using the Agent Status dashboard. This dashboard is useful for creating agent instances one Agent Manager at a time.

Another way to create agent instances is using the `fglcmd` command-line interface. For more information about the available `fglcmd` commands, see the *Command-Line Reference Guide*.

To create, activate VMware Performance Agent instances and start their data collection using the Agent Status dashboard:

1   Log in to the Foglight for VMware™ browser interface.

2   On the navigation panel, under **Dashboards**, choose **Administration > Agents > Agent Status**.

The Agent Status dashboard appears in the display area.

Figure 24. Agent Status dashboard
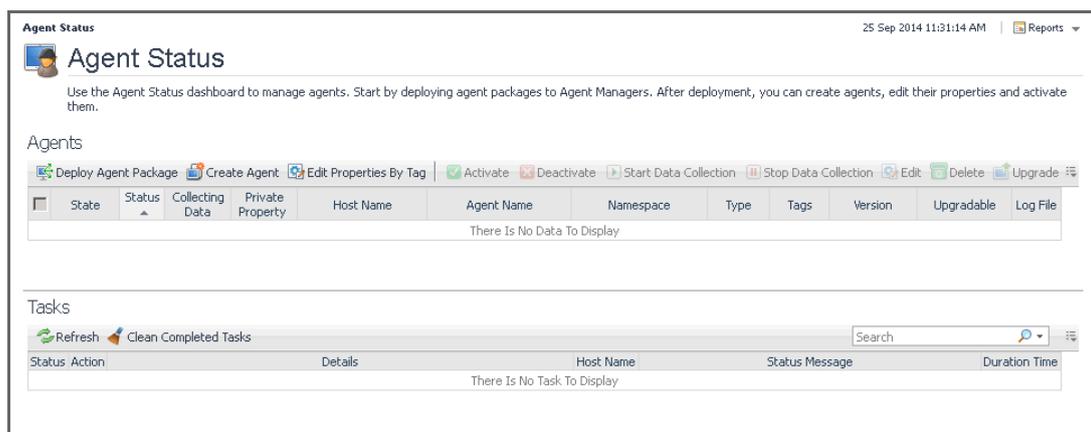
3   On the Agent Status dashboard, click **Create Agent**.

The **Create Agent** wizard appears with the **Host Selector** page open.
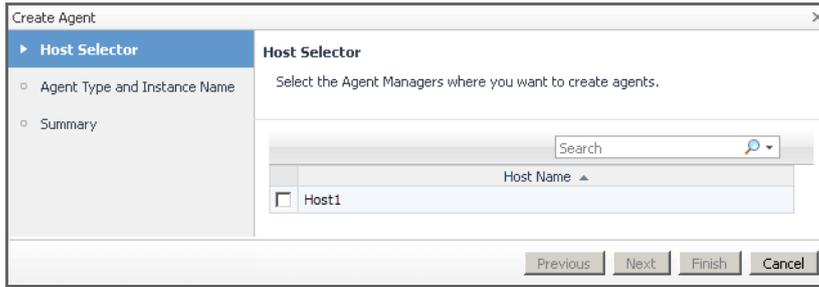
4 Specify the monitored host that you want to use to monitor with the VMware Performance Agent.

In the **Create Agent** wizard, on the **Host Selector** page, select the system on which the Agent Manager is running, and click **Next**.

If the system name does not appear in the list, check that its Agent Manager is active and connected to the Management Server.

The **Create Agent** wizard refreshes, showing the **Agent Type and Instance Name** page.

Figure 25. Agent Type and Instance Name page
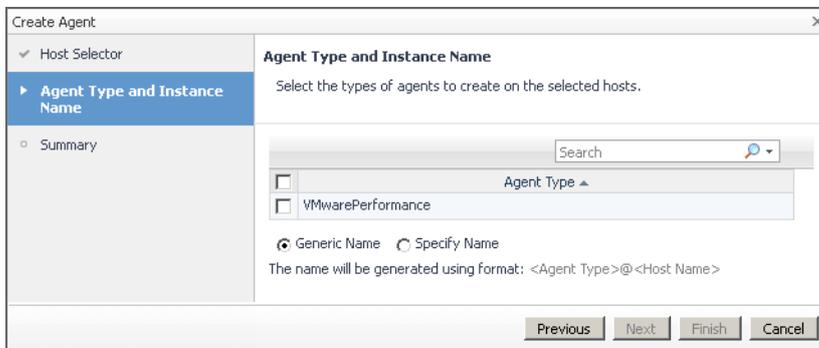
> ⓘ | **IMPORTANT:** If the `VMwarePerformance` agent type is not listed, you likely need to deploy the VMware Performance Agent package to that host. For more information, see Deploying VMware Performance Agent packages to monitored hosts on page 10.

5 On the **Agent Type and Instance Name** page, select `VMwarePerformance`.

6 Specify the name of the VMware Performance Agent instance that you are about to create.

- To have Foglight for VMware assign a generic name, ensure that **Generic Name** is selected.

- To use a specific agent name, select **Specify Name**, and in the Name box that appears, type the agent name.

7 Click **Next**.

The **Create Agent** wizard refreshes, showing the **Summary** page.

Figure 26. Summary page
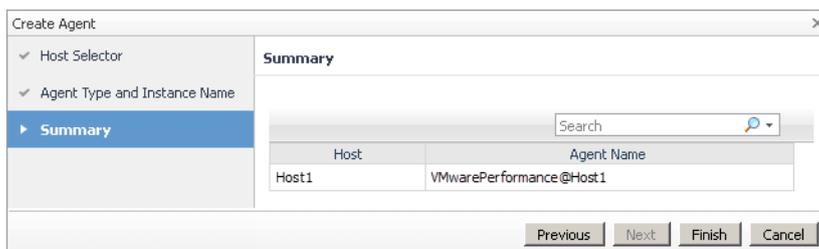
8   In the **Create Agent** wizard, on the **Summary** page, verify that the host name and agent name are correct, and click **Finish**.

The **Create Agent** wizard closes, and the Agent Status dashboard refreshes, showing in the **Tasks** area that the **Deploy Agent Package** task is in progress. After a few moments, a green icon appears in the **Status** column, indicating a successful deployment.

Figure 27. Create Agent task successful

If agent creation is not successful, there are several things you can do to troubleshoot the deployment failure. For more information, see the online help for the Agent Status dashboard.

9   Configure the properties of the newly created agent instance.

When a VMware Performance Agent connects to the Management Server, it is provided with sets of properties that the agent uses to configure its correct running state. Foglight stores agent properties on the Management Server.

a   Select the agent instance and click **Edit**.

b   From the menu that appears, choose **Edit Properties**.

The Agent Status dashboard refreshes, showing the VMware Performance Agent properties in the display area.

Figure 28. VMware Performance Agent Properties

ℹ   **NOTE:** When multiple agents are selected, you can only edit the properties that are common to all selected agents.

c   Click **Modify properties for this agent only**.

d   Edit the agent's properties, as required.

For more information, see Setting the VMware Performance Agent properties on page 23.

e   When finished, click **Save**, then click the **Back To Agent Status** button.

10   Activate the newly created VMware Performance Agent instance.

On the Agent Status dashboard, select the row containing the agent instance that you want to activate, and click **Activate**.

The **Activate Agent(s)** message box appears, showing the status of the activation process.

The **Create Agent** wizard closes, and the Agent Status dashboard refreshes, showing in the **Tasks** area that the **Deploy Agent Package** task is in progress.

After a few moments, the **Activate Agent(s)** message box closes, and the **Agents** area on the Agent Status dashboard refreshes, showing a green icon in the **Status** column, indicating a successful activation.

Figure 29. Agent successfully activated

If agent creation is not successful, there are several things you can do to troubleshoot the deployment failure. For more information, see the online help for the Agent Status dashboard.

Setting the VMware Performance Agent properties

The VMware Performance Agent collects data from the virtual infrastructure and sends it to the Management Server. The agent keeps track of resource utilization metrics and alerts you when certain pre-defined thresholds are reached.

When an agent connects to Foglight Management Server™, it is provided with sets of properties that it uses to configure its correct running state. Each agent is provided with a combination of two types of properties: agent properties and shareable properties.

Default versions of these properties are installed with Foglight for VMware. However, you can edit the default shareable and agent properties, configure agent properties that apply only to a specific agent instance, and create edited clones of shareable properties that are used by a subset of agents of a certain type.

There are two ways to access the VMware Performance Agent properties:

• On the VMware Environment dashboard, on the **Administration** tab, select an agent instance and click **Edit Properties** (see Configuring VMware Performance Agents for data collection on page 16). This method only provides access to the Configuration properties, but not the Black List and Data Collection Scheduler properties.

• On the Agent Status dashboard, select an agent instance and click **Edit Properties**. This method provides access to the full set of VMware Performance Agent properties, and is described in this section

For more information about working with agent properties, see the *Administration and Configuration Guide.*

To modify agent properties:

1   Log in to the Foglight browser interface.

2   Ensure that the navigation panel is open.

    To open the navigation panel, click the right-facing arrow ▶ on the left.

3   Navigate to the VMware Performance Agent properties. An agent instance can have a combination of global and private properties. Global properties apply to all instances of the agent type, while private properties apply only to specific agent instances.

    f   On the navigation panel, under **Dashboards**, choose **Administration > Agents > Agent Status**.

        > **ℹ** | **IMPORTANT:** Another way of editing the VMware Performance Agent properties is through the Agent Properties dashboard. The properties you specify on this dashboard apply to all instances of the VMware Performance Agent type. To be certain that you are editing properties for a particular agent instance, without overwriting any properties of other VMware Performance instances, use the Agent Status dashboard instead of the Agent Properties dashboard.

    g   On the Agent Status dashboard, select the instance of the VMware Performance Agent whose properties you want to modify and click **Edit Properties**.

    h   Click **Modify the private properties for this agent** to indicate that you want to edit the properties of the selected VMware Performance Agent instance.

        A list of agent properties appears in the display area.

Figure 30. Agent Properties
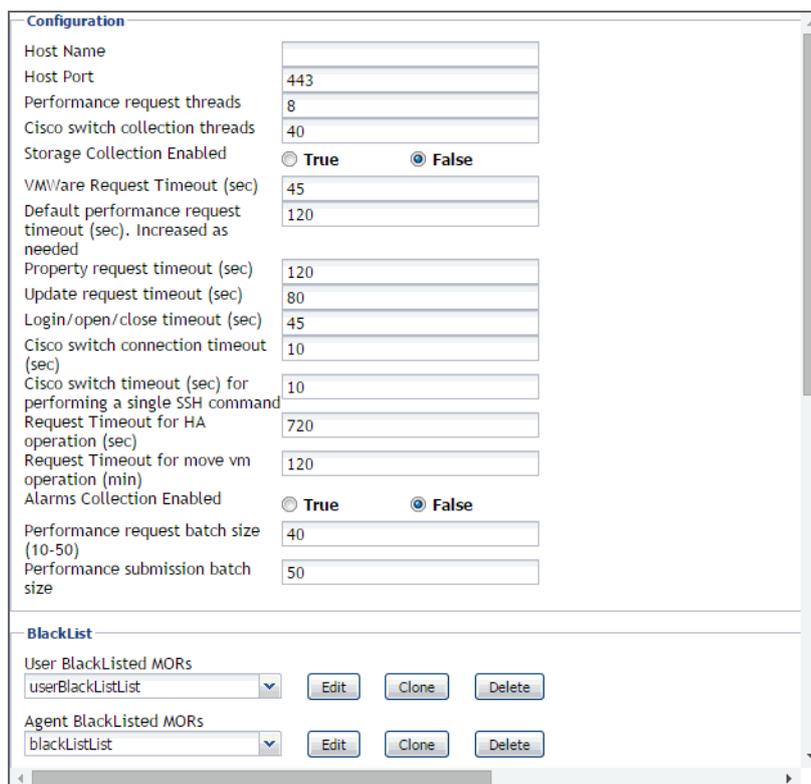
The configuration of agent properties described in this section include:

- Setting the VMware Performance Agent properties on page 23
- Setting the Configuration properties on page 25
- Setting the FileCollector properties on page 26
- Setting the vSwitchCollector properties on page 26
- Setting the Duplicate VM List properties on page 27

Setting the Configuration properties

The **Configuration** properties point the VMware Performance Agent to the machine on which the Virtual Center is running, and provide some additional configuration settings.

To set the configuration properties:

1 Locate the VMware Performance Agent's **Configuration** properties.

2 Set the **Configuration** properties as follows:

- **Host Name**: The fully qualified host name of the machine on which the Virtual Center is running.

- **Host Port**: The port number of the machine on which the Virtual Center is running that will be used by the VMware Performance Agent to connect to that machine in order to collect data from the monitored Virtual Center.

- **Performance request threads**: The number of threads in a performance request.

- **Cisco switch collection threads**: The number of threads in a Cisco switch collection.

- **Storage Collection Enabled**: If you are running <Product Name>™ for Storage Management and want to enable the VMware Performance Agent to collect the Foglight Storage data, select **True**, otherwise, set this property to **False**. Foglight for Storage Management can help you optimize the VMware environment virtual storage and its underlying physical storage components. For more information about this product, see your Foglight for Storage Management documentation.

- **VMWare Request Timeout (sec)**: The amount of time in seconds after which a VMware request times out.

- **Default performance request timeout (sec)**. **Increased as needed**: The amount of time in seconds after which a default performance request times out.

- **Property request timeout (sec)**: The amount of time in seconds after which a property request times out.

- **Update request timeout (sec)**: The amount of time in seconds after which an update request times out.

- **Login/open/close timeout (sec)**: The amount of time in seconds after which login, open, or close requests times out.

- **Cisco switch connection timeout (sec)**: The amount of time in seconds after which a Cisco switch connection times out.

- **Cisco switch timeout (sec) for performing a single SSH command**: The amount of time in seconds after which an attempt to perform a single SSH command on a Cisco switch times out.

- **Request Timeout for HA operation (sec)**: The amount of time in seconds after which an HA operation request times out.

- **Request Timeout for move vm operation (min)**: The amount of time in minutes after which a request for an operation to move a virtual machine times out.

- **Alarms Collection Enabled**: If you want to collect VMware alarms from the monitored system, set this to **True**. Otherwise, select **False**.

- **Performance request batch size (10-50)**: The size of a performance request batch.

- **Performance submission batch size**: The size of a performance submission batch.

3 Click **Save**.

Setting the FileCollector properties

A file collector is a component that captures metrics from specific files on the monitoring system. The **FileCollector** properties instruct the VMware Performance Agent which datastores, file directories, and files to exclude from monitoring.

To set the FileCollector properties:

1   Locate the VMware Performance Agent's **FileCollector** properties.

2   Set the **FileCollector** properties as follows:

- **Excluded Datastores**: Select a list in which you want to specify the datastores that you want to exclude from monitoring. You can select or clone an existing list, and edit it, as required. The default list is `excludedDatastoresList`. Lists can be shared between multiple agent instances. For more information about list properties, see the *Administration and Configuration Help*.

  For each datastore entry in the list, set its properties as follows:

  - **Datastore Name**: The name of one or more datastores that you want to exclude from monitoring. To specify multiple datastores, you must use regular expressions.

  - **Regex Flag**: Indicates if the **Datastore Name** contains a regular expressions.

- **Excluded Folders**: Select a list in which you want to specify the file directories that you want to exclude from monitoring. You can select or clone an existing list, and edit it, as required. The default list is `hiddenFolders`. Lists can be shared between multiple agent instances. For more information about list properties, see the *Administration and Configuration Help*.

  For each directory entry in the list, set its properties as follows:

  - **Folder Name**: The path to one or more directories that you want to exclude from monitoring. To specify multiple directories, you must use regular expressions.

  - **Regex Flag**: Indicates if the **Folder Name** contains a regular expressions.

- **Excluded Files**: Select a list in which you want to specify the files that you want to exclude from monitoring. You can select or clone an existing list, and edit it, as required. The default list is `vmwareSrmFiles`. Lists can be shared between multiple agent instances. For more information about list properties, see the *Administration and Configuration Help*.

  For each directory entry in the list, set its **File Name Regex** property to a regular expression that points to one or more files that you want to exclude from monitoring.

3   Click **Save**.

Setting the vSwitchCollector properties

A vSwitch collector is a component that captures metrics from virtual switches on the monitoring system. The **vSwitchCollector** properties instruct the VMware Performance Agent which virtual switches to monitor.

To set the vSwitchCollector properties:

1   Locate the VMware Performance Agent's **vSwitchCollector** properties.

2   Set the **vSwitchCollector** properties as follows:

- **Monitoring Switches**: Select a list in which you want to specify the VMware virtual switches that you want to monitor. You can select or clone an existing list, and edit it, as required. The default list is `monitoredSwitchList`. Lists can be shared between multiple agent instances. For more information about list properties, see the *Administration and Configuration Help*.

  For each switch entry in the list, set its properties as follows:

  - **DVS Managed Object Reference**: The managed object reference of the distributed virtual switch.

  - Switch IP: The IP address of the virtual switch.

- Fglam IP: The IP address of the Agent Manager associated with this VMware Performance Agent instance.

- Listening Port: The port number the virtual switch uses.

- End Date: The date after which the virtual switch will no longer be in use.

- Enable Data Collect: An indicator of whether this VMware Performance Agent instance collects the data about this virtual switch.

- **Other Switches (Non-VMware)**: Select a list in which you want to specify the non-VMware virtual switches that you want to monitor. You can select or clone an existing list, and edit it, as required. The default list is `monitoredSwitchList`. Lists can be shared between multiple agent instances. For more information about list properties, see the *Administration and Configuration Help*.

  For each switch entry in the list, set its properties as follows:

  - **DVS Managed Object Reference**: The managed object reference of the distributed virtual switch.

  - Switch IP: The IP address of the virtual switch.

3 Click **Save**.

Setting the Duplicate VM List properties

A duplicated virtual machine is a copy or clone of an existing VM in your environment. The **Duplicate VM List** properties indicate to the VMware Performance Agent which virtual machines are duplicates or clones of the existing VMs.

To set the Duplicate VM List properties:

1 Locate the VMware Performance Agent's **Duplicate VM List** properties.

2 Set the **Duplicate VM List** properties as follows:

- **Duplicate VM List MOR**: Select a list in which you want to specify the duplicated virtual machines. You can select or clone an existing list, and edit it, as required. The default list is `duplicateVMListList`. Lists can be shared between multiple agent instances. For more information about list properties, see the *Administration and Configuration Help*.

  For each directory entry in the list, set its **Duplicate VM Item** property to contain the managed

3 Click **Save**.

Setting the Black List properties

In some rare cases, the VMware Performance Agent can encounter ESX hosts and virtual machines for which it cannot collect data. To prevent these problems, the VMware Performance Agent detects these entities, excludes them from data collection, and adds them to the agent black list.

Any metrics associated with these objects are not included in roll up performance metrics. When an entity is added to the agent black list, an agent message and alarm are generated makes you aware of the problem so that you can investigate it further in the monitored VMware environment. When the issue with the entity is resolved, it can be removed from the agent black list. The next available performance collection includes this entity in the data collection request.

In addition to the list that is populated by the agent, there is a user-populated black list. You populate this list by adding ESX hosts and virtual machines that you want to exclude from data collection. This feature enables Foglight administrators to disable data collection for certain ESX hosts and virtual machines, which also prevents their performance metrics from being submitted to Foglight.

! | **CAUTION: Black listing an ESX host disables data collection for that ESX host, including the collection of virtual machine, storage, and network metrics for that host.**

Any metrics associated with black listed objects are submitted as part of roll up metrics. For example, if a virtual machine that appears on the user-populated black list is part of a resource pool, the virtual machine performance metrics are included with the performance metrics of other virtual machines from the same resource pool. This resource pool performance data is collected and submitted to Foglight. At the same time, the black-listed virtual machine object will not appear to have any performance metrics stored for this object. ESX hosts are handled the same way in terms of rolling up performance data for clusters, datacenters, or the Virtual Center.

Each ESX host or virtual machine entry in the user black list should include the Managed Object Reference (MOR) value. The MOR value is assigned to monitored objects in the monitored VMware environment and is collected by Foglight for VMware. This value is stored in the `Managed Object Reference` property of ESX host and virtual machine objects. You can use the Data Browser to find out the MOR values for those ESX hosts or virtual machines that you want to exclude from data collection.

The agent checks both lists during data collection. You can remove entities from either list, as required. For example, if you resolve an issue with a virtual machine that causes data collection problems, you can remove the virtual machine from the black list.

For any ESX hosts or virtual machines that you want to exclude from data collection an entry should exist in the agent or user black lists. While you can add entries to the user lists, agent black lists should only be populated by the VMware Performance Agent. Any ESX hosts or virtual machines for which you want to enable data collection must have their entries removed from either black lists.

Every VMware Performance Agent instance is associated with an agent and a user black list. Each agent instance should maintain a unique pair of these lists. Because list properties in Foglight (also known as secondary properties) are shareable properties, meaning that they are accessible to all agent instances of the type in which they are defined, you should clone an agent and a user black list for each agent instance and give them unique names.

Entities included in these lists are not included in the collection of performance metrics. Other collections are not affected by their contents.

To set the black list properties:

1   Locate the VMware Performance Agent's **BlackList** properties.

2   Associate this agent instance with a user black list.

    a   Choose the user black list that you want to use for this agent instance. Click the **User BlackListed MORs** list, and select the black list. The default list is `userBlackList`.

    b   Clone the selected list to create a unique user black list for this agent instance. Click **Clone** on the right.

        The **Clone userBlackList** dialog box appears.

    c   In the **Clone userBlackList** dialog box, type the name of the user black list. It is recommended to use a syntax that makes the list name unique and easily associated with this agent instance. For example: *<list_name>_<agent_name>*

    d   Click **OK** to close the **Clone userBlackList** dialog box.

        The newly cloned user black list is now associated with this agent instance.

3   Edit the user black list to disable or enable data collection for particular ESX hosts or virtual machines.

    ℹ️ | **IMPORTANT:** For any ESX hosts or virtual machines that you want to exclude from data collection, an entry should exist in the agent or user black lists. While you can add entries to the user lists, agent black lists should only be populated by the VMware Performance Agent. Any ESX hosts or virtual machines for which you want to enable data collection must have their entries removed from either black lists.

a Click **Edit** on the right of the **User BlackListed MORs** list.

The **VMwarePerformance - userBlackList** dialog box appears.
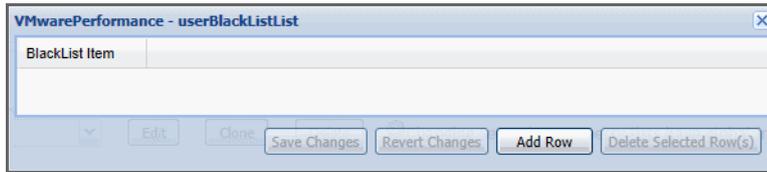
b To disable data collection for an ESX host or virtual machine, add it to the list.

> **i** | **IMPORTANT:** Black listing an ESX host disables data collection for that ESX host, including the collection of virtual machine, storage, and network metrics for that host.

To black list an ESX host or virtual machine, click **Add Row**, and in the new row that appears, in the **BlackList Item** column, specify the ESX host or virtual machine using the following syntax:

<**host**|**vm**>–<*MOR*>

Where:

- **host**: Indicates that the black list item is an ESX host.
- **vm**: Indicates that the black list item is a virtual machine.
- *MOR*: The value of the Managed Object Reference property of the ESX host or virtual machine that you want to exclude from data collection.

For example: `vm-20123`

> **i** | **TIP:** You can use the Data Browser to find out the MOR values for those ESX hosts or virtual machines that you want to exclude from data collection.

c To enable data collection for an ESX host or virtual machine, remove it from the list. Select the ESX host or virtual machine entry in the list, and click **Delete Selected Row(s)**.

The list refreshes, no longer showing the deleted entry.

4 Associate this agent instance with an agent black list.

a Choose the agent black list that you want to use for this agent instance. Click the **Agent BlackListed MORs** list, and select the black list. The default list is `blackList`.

b Clone the selected list to create a unique agent black list for this agent instance. Click **Clone** on the right.

The **Clone blackList** dialog box appears.
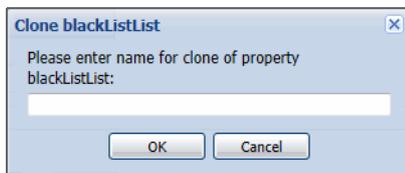
c In the **Clone blackList** dialog box, type the name of the agent black list. It is recommended to use a syntax that makes the list name unique and easily associated with this agent instance. For example: <*list_name*>_<*agent_name*>

d Click **OK** to close the **Clone blackList** dialog box.

The newly cloned agent black list is now associated with this agent instance. The agent populates this list by adding ESX host or virtual machine entries that cause problems in data collection.

5 Edit the agent black list to enable data collection for particular ESX hosts or virtual machines.

> **i** | **IMPORTANT:** For any ESX hosts or virtual machines that you want to exclude from data collection, an entry should exist in the agent or user black lists. While you can add entries to the user lists, agent black lists should only be populated by the VMware Performance Agent. Any ESX hosts or virtual machines for which you want to enable data collection must have their entries removed from either black lists.

    a   Click **Edit** on the right of the **Agent BlackListed MORs** list.

        The **VMwarePerformance - blackList** dialog box appears.

    b   To enable data collection for an ESX host or virtual machine, remove it from the list. For example, if an issue with a virtual machine is resolved, you can remove its entry from the agent black list. Select the ESX host or virtual machine entry in the list, and click **Delete Selected Row(s)**.

        The list refreshes, no longer showing the deleted entry.

6   Click **Save**.

Setting the Data Collection Scheduler properties

Use the Data Collection Scheduler properties to adjust how frequently the VMware Performance Agent collects data from the monitored server.

To set the data collection properties:

1   Locate the VMware Performance Agent's **Data Collection Scheduler** properties.

2   Set the **Data Collection Scheduler** properties as follows:

    a   Select a collection configuration list. You can select or clone an existing collection configuration list, and edit it, as required.

    b   Add, remove, or edit collectors in the list.

    c   For each collector, set its properties as follows:

    ▪   **Collector Name**: The name of the collector. A collector is a component that captures specific type of metrics. Existing collectors are: **Relationship And Hierarchy Data**, **Inventory Entity Properties**, **Performance Metrics**, and **Events Collection**.

    ▪   **Default Collection Interval**: Contains the length of the default collection interval. The default collection intervals for the existing collectors are:

        Relationship and Hierarchy: 2 minutes

        Inventory Entity Properties: 5 minutes

        Performance Metrics: 5 minutes

        Events Collection: 3 minutes

    ▪   **Time Unit**: Contains the time unit for measuring the default collection interval: milliseconds, seconds, minutes, hours, or days.

    ▪   **Fast-Mode Collection Interval**: Contains the length of the collection interval when the agent is running in fast mode.

    ▪   **Fast-Mode Time Unit**: Contains the length of the collection interval when the agent is running in fast mode.

- **Fast-Mode Max Count**: Contains the maximum count of entries when the agent is running in fast mode.

Upgrading Foglight for VMware

The latest version of Foglight for VMware is 7.1.0. For complete information about the upgrade procedure, refer to the *Foglight Upgrade Guide*.

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