HP Operations Agent

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User Guide: VMware Monitoring

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Chapter 1

Monitoring VMware vSphere Environments

The HP Operations agent gives you the following options to monitor a VMware vSphere environment:

- **Monitoring with a virtual appliance**

  The virtual appliance packaged with the *HP Operations Agent and Infrastructure SPIs 11.12* media contains a preinstalled and preconfigured HP Operations agent 11.12. The HP Operations agent on the virtual appliance can collect performance data directly from vCenter Servers. The HP Operations agent on the virtual appliance provides additional benefits like a robust data store and the capability to collect entity details and can monitor an environment with up to 2000 entities.

- **Monitoring with vSphere Management Assistant (vMA)**

  The HP Operations agent installed on a vMA can monitor the environment by collecting the performance data from individual ESX/ESXi hosts. This type of monitoring requires you to manually install and configure the HP Operations agent on the vMA.

Additional Benefits of Using the HP Operations Agent on the Virtual Appliance

A major benefit of choosing the virtual appliance instead of monitoring through a vMA is the ease of installation and configuration. The HP Operations agent virtual appliance packaged with the HP Operations Agent and Infrastructure SPIs 11.12 media contains a preinstalled and preconfigured agent, and therefore, eliminates the need of installing the agent manually.

The HP Operations agent packaged with the virtual appliance includes the following additional features that are not available for use when you install the HP Operations agent on a vMA:

- **HP Operations agent data store**

  The HP Operations agent on the virtual appliance uses a robust, embedded data store to store the collected performance data. Data is not stored in the form of log files on the virtual appliance.

- **Capability to store vCenter events**

  The HP Operations agent on the virtual appliance enables you to store vCenter events into agent's embedded data store. You can use these events for advanced monitoring.

- Discovery and monitoring of VMware data center topology and relationship between different entities

- Easy and direct access to the performance data with the help of Perl script extensions

Chapter 2

Monitoring vSphere Environments with the HP Operations Agent Virtual Appliance

The HP Operations agent on the virtual appliance simplifies the monitoring of the VMware infrastructure by providing a mechanism for easy deployment of the agent. You can deploy a virtual appliance where the HP Operations agent is preinstalled. The preinstalled agent, once configured, is capable of collecting performance data from different vCenter Servers. The agent on the virtual appliance also enables you to find topology information and relationships between different entities in the VMware environment.

The HP Operations agent on the virtual appliance uses an embedded data store for storing performance data collected from different vCenters. In addition to collecting new metrics, the HP Operations agent on the virtual appliance collects and stores a set of vCenter events. Policies provided with the Virtualization Infrastructure SPI help you monitor those events.

Deploying the Virtual Appliance with the HP Operations Agent

The vSphere virtual appliance that contains a preinstalled HP Operations agent is available with the *HP Operations Agent and Infrastructure SPIs 11.12* media in the form of the `HPOA_VM_OVF10.ova` file.

Note: Do not install or deploy any HP Software products or components (other than HPOM policies for VMware monitoring) on the virtual appliance. HP also recommends that you do not install any third-party software products on the virtual appliance.

You can use one of the following methods to deploy the virtual appliance:

- Using the vSphere console
- Using the command line

If you want to upgrade from the pervious version of Virtual Appliance to version 11.12, see Upgrading the Virtual Appliance with HP Operations agent to Version 11.12.

Deploying from the vSphere Console

To deploy the virtual appliance with the HP Operations agent from the vSphere console:

1. Log on to the vSphere console.
2. Select the data center where you want to deploy the new virtual appliance.

3. Click **File > Deploy OVF Template**. The Deploy OVF Template window opens.
4. Follow the on-screen instructions.

   While specifying configuration details, you can specify the FQDNs or IP addresses of the management server and certificate server for the HP Operations agent that is preinstalled on the virtual appliance. If you did not configure a separate certificate server, leave the Certificate Server field blank.

Deploying from the Command Line

To deploy the virtual appliance with the HP Operations agent from the command line with the OVF tool:

Note: Make sure to download the OVF tool from www.vmware.com.

1. Log on to a vCenter.
2. Run the following command if you want to use a static IP address:

   ovftool -n=<*name of the appliance*> **--network=**<*name of the network*> **-ds=**<*data store name*> **--powerOn -dm=thin --prop:dhcp_static=STATIC --prop:static_ip=**<*static_IP_address*> **--prop:subnet_ip=**<*Subnet_IP*> **--prop:gateway_ip=**<*gateway_IP*> **--prop:dns1=**<*DNS_IP*> *location_of_OVA_file*> **--prop:mgmt_server=**<*management_server*> **--prop:cert_server=**<*certificate_server*> <*location_of_the_VA*>

   Run the following command if you want to use a dynamic IP address:

   ovftool -n=<*name of the appliance*> **--network=**<*name of the network*> **-ds=**<*data store name*> **--powerOn -dm=thin --prop:dhcp_static=DHCP --prop:subnet_ip=**<*Subnet_IP*> **--prop:gateway_ip=**<*gateway_IP*> **--prop:dns1=**<*DNS_IP*> *location_of_OVA_file*> **--prop:mgmt_server=**<*management_server*> **--prop:cert_server=**<*certificate_server*> <*location_of_the_VA*>

   In this instance:

   <*name of the appliance*> is the name that you want to assign to the new virtual appliance

   <*name of the network*> is the name of the network where you want to deploy the virtual appliance

   <*static_IP_address*> is the static IP address of the virtual appliance

   <*Subnet_IP*> is the IP address of the subnet where you want to deploy the virtual appliance

   <*gateway_IP*> is the IP address of the gateway server for the virtual appliance

   <*DNS_IP*> is the IP address of the DNS server for the virtual appliance

   <*management_server*> is the FQDN or IP address of the HPOM management server

   <*certificate_server*> is the FQDN or IP address of the certificate server

   Tip: You can skip the `--prop:cert_server=` option if you did not configure a separate

certificate server.

<location_of_OVA_file> is the location where you stored the HP Operations agent OVA file

Verification

To verify that the agent is successfully installed on the virtual appliance:

1. Log on to the virtual appliance as root.

   Tip: By default, the root password of the virtual appliance is `password`. You can modify this password if you like.

2. Run the following command:

   /opt/OV/bin/opcagt

   The agent is successfully installed if the command output shows all the agent processes are running.

```
midaemon    Measurement Interface daemon  (8873) Running
ttd         ARM registration daemon       (8982) Running
perfalarm   Alarm generator               (9156) Running
oacore     Operations Agent Core AGENT,OA (9543) Running
opcacta     OVO Action Agent     AGENT,EA (9527) Running
opcmsga     OVO Message Agent     AGENT,EA(9490) Running
ovbbccb     OV CommunicationBroker CORE   (9453) Running
ovcd        OV Control   CORE             (9445) Running
ovconfd     OV Config and Deploy   COREXT (9472) Running
```

Note: HP GlancePlus is not available with the HP Operations agent on the virtual appliance. The `cpsh` and `perfd` utilities are available on the virtual appliance.

Steps After Deployment

After you deploy the virtual appliance, you must configure the HP Operations agent to start collecting data from different vCenter Servers. You can use to the HP Operations Agent Virtual Appliance web console to perform this configuration task. Alternatively, you can log on to the virtual appliance as root and complete this task from the command line.

Tip: The default root password for the virtual appliance is `password`. You can change this password after the virtual appliance is successfully deployed.

Enable Additional License

The HP Operations OS Inst Adv SW LTU is permanently enabled on the virtual appliance. If you want to monitor the real-time data with the Diagnostic View of HP Performance Manager, you must purchase and enable the HP Ops OS Inst to Realtime Inst LTU on the virtual appliance.

To enable the HP Ops OS Inst to Realtime Inst LTU permanently:

1. Log on to the virtual appliance as root.
2. Run the following command:

   /opt/OV/bin/oalicense -set -type PERMANENT "HP Ops OS Inst to Realtime Inst LTU"
3. After enabling the license, run the following commands:

   /opt/perf/bin/pctl stop

   /opt/perf/bin/pctl start

   /opt/OV/bin/opcagt -start

Configuring the HP Operations Agent with the HP Operations Agent Virtual Appliance Web Console

The HP Operations Agent Virtual Appliance web console presents you an interface to configure the agent running on the virtual appliance to start collecting data from different vCenters. Along with adding vCenters of your choice for monitoring, you can perform the following tasks from this console:

- Restart the data collection cycle
- View the status of the agent running on the virtual appliance
- Shut down or restart the virtual appliance

To configure the agent with the HP Operations Agent Virtual Appliance web console:

1. Log on to the HP Operations Agent Virtual Appliance web console.

   To go to the HP Operations Agent Virtual Appliance web console, open a web browser, and then type the following address in the address bar:

   https://<*IP_address*>**:5480**

   or

   https://<*FQDN*>**:5480**

   In this instance, <*IP_address*>and <*FQDN*> are the IP address and fully qualified domain name of the newly deployed virtual appliance.

> **Tip:** When you launch this address, the web browser shows a security certificate exception. Ignore the exception and continue to proceed.

2. Log on with the root credentials of the virtual appliance.

   > **Tip:** By default, the root password of the virtual appliance is `password`. You can modify this password if you like.

3. Go to the Operations Agent tab.
4. In the vCenter Name box, type the name (fully qualified domain name) of the vCenter that you want to monitor.
5. In the User Name box, type the user name to access the data from the vCenter.Type the user name in the following format:

   Domain\user name

6. In the Password box, type the password of the above user.
7. Click **Add/Update**. The vCenter name appears in the section above with the status information.

Configuring the HP Operations Agent from the Command Line

You can log on to the newly deployed virtual appliance as root and perform the configuration task from the command line.

To configure the agent from the command line:

1. Log on to virtual appliance as root.

   > **Tip:** By default, the root password of the virtual appliance is `password`. You can modify this password if you like.

2. From the command line, run the following command:

   /opt/OV/bin/oaconfig -addtarget <*vCenter_name*> <*user_name*> <*password*>

   In this instance:

   <*vCenter_name*> is the fully qualified domain name of the vCenter.

   <*user_name*> is the user name to access the vCenter. Specify the user name in the following format:

   Domain\\user name

   > **Note:** You must use \\ instead of \ while you add a target from the command line.

   <*password*> is the password of the above user.

If you do not include the password in the command, a prompt to type the password appears at the command line.

3. To check that the HP Operations agent on the virtual appliance successfully started monitoring the vCenter, run the following command:

   /opt/OV/bin/oaconfig -listtargets

   The name of the vCenter appears in the list of monitored vCenters.

   For more information about `oaconfig`, see "Reference Page" on page 33.

Configuring the HP Operations Agent on the Virtual Appliance to Use a Different Management Server

At the time of deployment of the virtual appliance, the HP Operations agent is configured to use an HPOM management server . HPOM management server details are provided in the vSphere Console or with the `ovftool` command.

After deploying the virtual appliance, if you want to use a different HPOM management server, you must perform additional tasks that include running the `oainstall.sh` command on the virtual appliance.

To use a different HPOM management server:

1. In the HPOM console, add the virtual appliance as the managed node, but do not deploy an agent.
2. Log on to virtual appliance as root.

   Tip: By default, the root password of the virtual appliance is `password`. You can modify this password if you like.

3. From the command line, run the following command:

   /opt/OV/bin/OpC/install/oainstall.sh -a -configure -srv <*management_server*> **-cert_srv** <*certificate_server*>

   In this instance:

   <*management_server*> is the fully qualified domain name or IP address of the HPOM management server.

   <*certificate_server*> is the fully qualified domain name or IP address of the certificate server.

4. After the HP Operations agent on the virtual appliance is configured to work with the HPOM management server, deploy the Virtualization Infrastructure SPI policies. For more information about those policies, see Virtualization Infrastructure SPI Policies for the Virtual Appliance.

Note: Do not install or deploy any HP Software products or components (other than HPOM policies for VMware monitoring) on the virtual appliance. HP also recommends that you do not

install any third-party software products on the virtual appliance.

Delete the Data Manually

The data purging feature enables you to delete the stored data to free up disk space. You can manually delete the data for a specific time range using the `oaconfig` tool, or you can configure the agent to automatically delete the selected data at a regular interval.

To delete the data manually:

1. Log on to the virtual appliance as root.
2. Run the following command:

   /opt/OV/bin/oaconfig -purgelog <*time*>

   You must specify the time in the following format:

   `YYYY-MM-DDThh:mm:ss`

   The command deletes the data collected before the specified time.

Alternatively, you can configure the HP Operations agent to automatically purge the data from the data store at a regular interval. For more information, see "Configure Automatic Purging of Data" on next page or "Configure Automatic Data Purging from the Command Line" on page 18.

vCenter Events

By default, the HP Operations agent collects and stores events from monitored vCenters, which you can use for advanced monitoring of the infrastructure. For a list of vCenter events that are collected by the HP Operations agent by default, see "vCenter Events" on page 35.

You can extend the list of monitored vCenter events by modifying the entries in the `VIEventTypes.cfg` file, which is available in the `/var/opt/OV/conf/vispi/configuration` directory on the virtual appliance.

If you want to monitor all vCenter events, delete the contents of the `VIEventTypes.cfg` file, and then save the file in the same directory.

To disable the collection vCenter events:

1. Log on to the virtual appliance as root.
2. Run the following command:

   /opt/OV/bin/ovconfchg -ns opsagt.viserver -set CollectEvents false

Using the HP Operations Agent Virtual Appliance Web Console

The HP Operations Agent Virtual Appliance web console provides a window to view the status of the HP Operations agent running on the virtual appliance. The console also enables you to perform different administrative tasks, such as:

- Configure the HP Operations agent to start monitoring vCenter Servers
- Configure automatic data purging
- Modify data collection intervals

Configure the HP Operations Agent on the Virtual Appliance

The Operations Agent tab of theHP Operations Agent Virtual Appliance web console enables you to configure the HP Operations agent running on the virtual appliance.

You already configured the HP Operations agent to collect data from the vCenter Server of your choice (see "Configuring the HP Operations Agent with the HP Operations Agent Virtual Appliance Web Console" on page 12 or "Configuring the HP Operations Agent from the Command Line" on page 13).

By using the HP Operations Agent Virtual Appliance web console, you can now add an additional target vCenter Server for monitoring or stop monitoring a vCenter Server that is currently monitored by the agent. You can also restart the collection mechanism of the HP Operations agent.

To add a vCenter Server target:

1. In the HP Operations Agent Virtual Appliance web console, go to the Operations Agent tab.
2. Type the following details:

Field	Description
vCenter Name	Fully qualified domain name or IP address of the vCenter Server that you want to add.
User Name	User name to log on to the vCenter Server. Specify the user name in the following format: **Domain\user name**
Password	Password of the above user.

3. Click **Add/Update**.

To delete a monitored vCenter target:

Click **Remove** against the vCenter Server name.

To restart the data collection process of the existing vCenter Servers, click **Restart Collection**.

Configure Automatic Purging of Data

The HP Operations Agent Virtual Appliance web console enables you to schedule purging of data from the HP Operations agent's data store at a regular interval. The automatic data purging feature helps you control the size of the HP Operations agent's data store. If you do not enable automatic data purging, the data continues to accumulate into the HP Operations agent's data store. This requires you to delete the data manually or increase the storage capacity of the virtual appliance.

To configure the automatic purging of data:

1. In the HP Operations Agent Virtual Appliance web console, go to the Operations Agent tab.
2. Click **Settings**.
3. Specify the following details:

Field	Description
Data Purging Interval (Days)	Specify the interval (in days) at which you want to delete the data from the agent's data store.
Data Retention Period (Days)	Specify the data retention period in days. The HP Operations agent deletes only the data that is older than the specified number of days from the data store. For example, if you specify 30, the HP Operations agent deletes all the data older than 30 days at the time of scheduled data purging.

4. Click **Apply Changes**.
5. Run the following command on the virtual appliance to start agent processes:

   /opt/OV/bin/ovc -start oacore

If you do not want to configure automatic purging of data, make sure the *Data Purging Interval (Days)* field is not set to any values.

You can also configure this from the command line. For more information, see "Configure Automatic Data Purging from the Command Line" on next page.

Modify the Collection Frequency of the HP Operations Agent

The HP Operations Agent Virtual Appliance web console enables you to choose one of the following collection frequencies:

- Fast
- Moderate

By default, the HP Operations agent uses the `fast` frequency.

Each frequency uses a fixed set of collection intervals for monitored entities.

To modify the collection frequency of the HP Operations agent:

1. In the HP Operations Agent Virtual Appliance web console, go to the Operations Agent tab.
2. Click **Settings**.
3. Select Fast or Moderate depending on your requirement.
4. Click **Apply Changes**. The HP Operations agent automatically restarts the data collection process, and then the change takes effect.

Collection Intervals for the Fast Frequency

Monitored Entity	Collection Interval (in Seconds)
Local Node	60
Virtualization Node	60
Virtualization Cluster	300
Virtualization Data Store	300
VirtualApp	300
Virtualization Resource Pool	300

Collection Intervals for the Moderate Frequency

Monitored Entity	Collection Interval (in Seconds)
Local Node	300
Virtualization Node	300
Virtualization Cluster	300
Virtualization Data Store	1800
VirtualApp	300
Virtualization Resource Pool	300

Configure Automatic Data Purging from the Command Line

To configure automatic data purging from the command line:

1. Log on to the virtual appliance as root.
2. Run the following command:

   /opt/OV/bin/ovconfchg -ns opsagt -set AutoPurgeIntervalSecs <*interval*>

   You must specify the interval in seconds.
3. You must also specify the data retention period. Run the following command to specify the data retention period:

   /opt/OV/bin/ovconfchg -ns opsagt -set KeepDataForSecs <*retention_period*>

   You must specify the retention period in seconds.

4. Run the following command to start agent processes:

   /opt/OV/bin/ovc -start oacore

Monitoring vCenters with the HP Operations Agent on the Virtual Appliance

The Virtualization Infrastructure SPI, packaged with the *HP Operations Agent and Infrastructure SPIs 11.12* media, contains a set of policies that help you monitor the vSphere environment with the help of the data collected by the HP Operations agent on the virtual appliance.

The Virtualization Infrastructure SPI 11.12 can be installed on the HPOM management server at the time of registering the deployment packages of the HP Operations agent 11.12. For more information about installing the Virtualization Infrastructure SPI, see the *HP Operations Agent and HP Operations Smart Plug-ins for Infrastructure Installation and Configuration Guide* (available on the product media or on the HP Software Product Manual web site).

These policies are available under the `Infrastructure Management > en > Virtualization Infrastructure > Policies grouped by vendor > VMware vCenter - Quick Start` and `Infrastructure Management > en > Virtualization Infrastructure > Policies grouped by vendor > VMware vCenter - Advanced` groups in the console tree of the HPOM console after you install the Virtualization Infrastructure SPI on the HPOM management server. Deploy these policies on the virtual appliance to start monitoring the vSphere environment.

Note: Measurement threshold policies with the source type set to `Embedded Performance Component` and the data source set to `CODA` cannot be deployed on the virtual appliance.

Virtualization Infrastructure SPI Policies for the Virtual Appliance

Policy Name	Type	Group	Description
VI-VMwareVCEventMonitor	Measurement Threshold	Infrastructure Management > en > Virtualization Infrastructure > Policies grouped by vendor > VMware vCenter - Quick Start	The HP Operations agent on the virtual appliance collects and stores vCenter events. This policy helps you monitor those events.

Policy Name	Type	Group	Description
VI-VMwareVCEvent	ConfigFile	Infrastructure Management > en > Virtualization Infrastructure > Policies grouped by vendor > VMware vCenter - Quick Start	Add or delete vCenter events for monitoring. For a complete list of vCenter events that are monitored by the agent by default, see "vCenter Events" on page 35.
VI-VMwareVCGuestStateMonitor	Measurement Threshold	Infrastructure Management > en > Virtualization Infrastructure > Policies grouped by vendor > VMware vCenter - Quick Start	Monitors the states of all logical systems in the VMware environment.
VI-VMwareVCDatastore SpaceUtilizationMonitor	Measurement Threshold	Infrastructure Management > en > Virtualization Infrastructure > Policies grouped by vendor > VMware vCenter - Advanced	Monitors the space utilization of each VMware datastore.
VI-VMwareVCGuestLatencyMonitor	Measurement Threshold	Infrastructure Management > en > Virtualization Infrastructure > Policies grouped by vendor > VMware vCenter - Advanced	Monitors the latency of guest systems (virtual machines). Latency of a virtual machine creates performance problems.

Policy Name	Type	Group	Description
VI-VMwareVCCPUSaturationMonitor	Measurement Threshold	Infrastructure Management > en > Virtualization Infrastructure > Policies grouped by vendor > VMware vCenter - Advanced	Monitors the consumption of host CPUs by virtual machines. The alert message lists the virtual machines that continuously use a significant amount of the CPU resource.
VI-VMwareVCCPUUtilMonitor	Measurement Threshold	Infrastructure Management > en > Virtualization Infrastructure > Policies grouped by vendor > VMware vCenter - Advanced	Monitors the CPU utilization of ESX/ESXi hosts.
VI-VMwareVCMemUtilMonitor	Measurement Threshold	Infrastructure Management > en > Virtualization Infrastructure > Policies grouped by vendor > VMware vCenter - Advanced	Monitors the memory utilization of ESX/ESXi hosts.

Configuring Logging Levels for the status.viserver File

The HP Operations agent on the virtual appliance uses the **VIlog4j.xml** file, located in **/var/opt/perf**, to log status information in the **status.viserver** file. The **log4j.dtd** file, available in **/var/opt/perf**, defines the template for the **VIlog4j.xml** file.

Note: There are elements in the XML file that are required for the logging to work correctly. Do not change or delete these elements. Only recommended change is the level of the com.hp.perfagent logger.

The XML file consist of the following major elements:

```
appender

logger
```

You can change only the following item within the
[<logger name="com.hp.perfagent"> ... </logger>] element:

```
<level value = "info"/>
```

This entity determines the level of logging in the **status.viserver** file. You can set value to one of the following non-default settings:

fatal: Use this setting to log minimal information.

all: Use this setting to log all the information.

warn: Use this setting to log only warning messages.

error: Use this setting to log only error messages.

debug: Use this setting to log information for debugging.

Note: Use the debug setting only for troubleshooting purposes.

Chapter 3

Downloading the Virtual Appliance with the Operations Agent Version 11.12

To download HP Operations agent VA ISO (OAVA_00001) file, follow these steps:

1. Go to the following web site:
   http://h20230.www2.hp.com/selfsolve/patches.
2. Log on to the web site with your HP Passport credentials.
3. Search with the keyword HP Operations agent. The search result includes links to download the ISO files for the HP Operations agent 11.12.
4. Download the VA zip file on your system.

You can use the methods to upgrade the previous version of the virtual appliance to version 11.12. See Upgrading the Virtual Appliance with HP Operations agent to Version 11.12.

Chapter 4

Upgrading the Virtual Appliance with HP Operations agent to Version 11.12.

You can use **one** of the following methods to upgrade the previous version of the virtual appliance to version 11.12:

- HP Operations Agent Virtual Appliance web console.
- Command line

From the Web Console

To deploy the virtual appliance with the HP Operations agent 11.12 from the web console, follow the steps:

1. Download and extract the OAVA_00001.zip file. Place the content of the files in the `http://<<IP_address>>/updates/`.
2. Log on to the HP Operations Agent Virtual Appliance web console.

   To go to the HP Operations Agent Virtual Appliance web console, open a web browser, and then type the following address in the address bar:

   https://<*IP_address*>**:5480**

   or

   https://<*FQDN*>**:5480**

   In this instance, <*IP_address*>and <*FQDN*> are the IP address and fully qualified domain name of the newly deployed virtual appliance.

   > **Tip:** When you launch this address, the web browser shows a security certificate exception. Ignore the exception and continue to proceed.

3. Go to **Update -> Settings** and check the **Repository URL**. This is to make sure that the downloaded repository is available at the correct IP address.Example, http://<<*IP_address*>>/updates/
4. To check for the available updates, go to **Update -> Status** tab and click **Check Updates.** The available updates with this version will appear.
5. Click **Install Updates** to install all the new updates available with this 11.12 version.

From the Command Line

To deploy the virtual appliance with the HP Operations agent 11.12 from the command line, follow the steps:

1. Log on to Operations agent Virtual Appliance as a root.
2. Download and extract the OAVA_00001.zip file. Log on to the web console and place the content of the files in the `http://<<IP_address>>/updates/`. Make sure to update the repository location from VA web console. You cannot update the repository location using the command line.
3. Run the command to check for the available updates for this version: **vamicli update --check**.
4. Run the command to install the available updates for this version: **vamicli update --install latest**

Chapter 5

Monitoring the vSphere Environment with vMA

As an alternative to monitoring the vSphere infrastructure with the virtual appliance, you can manually install the HP Operations agent on a vMA and monitor the environment with the help of the performance data collected by the agent running on the vMA.

This option requires you to manually install and configure the HP Operations agent on the vMA. Because the root user of a vMA is disabled by default, you cannot deploy the agent remotely from the HPOM console.

Installing the HP Operations Agent on a vMA

Prerequisites

- Make sure that the portmap service is started.
- Disable the floppy drive on the vMA.
- Increase the RAM size for the vMA to 1 GB.

Installation

To install the HP Operations agent on a vMA:

1. Enable the communication across firewalls on the vMA node.

   The agent uses the port 383 to facilitate the communication with other systems across firewalls. You must configure the vMA node to accept communication traffic on the port 383. To achieve this, follow these steps:

   a. On the vMA node, run the following command:

      sudo iptables -I RH-Firewall-1-INPUT 3 -p tcp -m tcp --dport 383 --tcp-flags SYN,RST,ACK SYN -j ACCEPT

      The vMA is configured to accept communication traffic on the port 383.

   b. Run the following command:

      sudo service iptables save

      The command saves the configuration set in step a.

   c. To verify the configuration settings, run the following command:

      sudo vi /etc/sysconfig/iptables

      The vi editor opens the `iptables` file from the `/etc/sysconfig` directory.

In the `iptables` file, verify that the following line is present:

```
-A RH-Firewall-1-INPUT -p tcp -m tcp --dport 383 --tcp-flags
SYN,RST,ACK SYN -j ACCEPT
```

2. Extract the contents of the HP Operations agent 11.12 media into a local directory on the vMA.
3. Log on to the vMA (default user: `vi-admin`), and then type the following command:

   sudo bash

   The command line prompts you for the password of the root user.
4. Type the root password.
5. Go to the directory where you extracted the media contents, and then install the HP Operations agent by using the `oainstall.sh` command:

   ./oainstall.sh -i -a

Configuring Data Collection on vMA Nodes

The HP Operations agent uses the viserver daemon to log data on the vMA system. You can configure `viserver` settings in the following configuration files (available in `/var/opt/perf`):

- `viserver.properties`
- `VILog4j.xml`

viserver.properties

This file contains the following parameters:

- `port`
- `hosts`
- `instance`
- `jvmArgs`
- `log4jInterval`

You must restart `viserver` if you change the settings in the `viserver.properties` file. The new settings are effective only after you restart `viserver`.

port

The port parameter is the loopback port through which viserver and clients communicate. The port parameter is non-editable; the value of this parameter changes when you restart viserver.

hosts

The hosts parameter defines the number of hosts that viserver daemon can support. The default value is 20.

If you have more hosts in your environment, you can edit this parameter to specify your required setting. If the HP Operations agent is not able to collect data for the number of hosts that you specified, you must reduce `vifp` targets.

instance

The instance parameter defines the number of instances viserver can support. The default value is 200.

If you have more instances in your environment, you can edit this parameter to specify your required setting. If the HP Operations agent is not able to collect data for the number of instances that you specified, you must reduce vifp targets.

jvmargs

The jvmArgs parameter enables you to add jvm arguments and modify jvm as required in your environment.

The default configuration for jvmArgs is as follows:

```
jvmArgs=-Xms128m -Xmx2048m -classpath
/opt/perf/bin/java/activation.jar\:/opt/perf/bin/java/
axis-ant.jar\:/opt/perf/bin/java/axis.jar\:/opt/perf/bin/java/
commons-discovery-0.2.jar\:/opt/perf/bin/java/commons-logging-
1.0.4.jar
\:/opt/perf/bin/java/jaxrpc.jar\:/opt/perf/bin/java/log4j-1.2.8.jar\:

/opt/perf/bin/java/mailapi.jar\:/opt/perf/bin/java/saaj.jar\:/opt/perf/

bin/java/vim25.jar\:/opt/perf/bin/java/viserver.jar\:/opt/perf/bin/java/
wsdl4j-1.5.1.jar\:/opt/vmware/vma/lib64/vmatargetlib25.jar\:
/opt/vmware/vma/lib64/vifplib25.jarcom.hp.perfagent.VIdaemon
```

log4jInterval

The log4jInterval parameter specifies the interval at which viserver checks for changes in VILog4j.xml file. The default value is 60000 milliseconds (1 minute). You can modify this value as required.

Monitoring with the HP Operations Agent on vMA

The Virtualization Infrastructure SPI, packaged with the *HP Operations Agent and Infrastructure SPIs 11.12* media, contains a set of policies that help you monitor the vSphere environment with the help of the data collected by the HP Operations agent on a vMA. Those policies are available under the `VMware ESX - Quick Start` and `VMware ESX - Advanced` groups in the console tree of the HPOM console after you install the Virtualization Infrastructure SPI on the HPOM management server.

Chapter 6

Troubleshooting

While using the HP Operations agent on a virtual appliance or vMA, you may experience certain problems. This section helps you troubleshoot such problems and provides you with information to help you avoid problems from occurring.

The VI-Discovery Policy Fails to Discover vCenters

While using the HP Operations agent on a virtual appliance, the VI-Discovery policy fails to discover vCenters. As a result, you cannot view vCenters on the Service map in the HPOM console.

Solution:

This problem occurs when the HP Operations agent fails to resolve the FQDN of the vCenter to an IP address. To resolve this issue, make sure that the agent can resolve the FQDN of the vCenter to an IP address.

The cpsh, padv, and mpadv Utilities Cannot Access the Complete Data Set

The `cpsh`, `padv`, and `mpadv` utilities cannot access the data collected from the newly added vCenter Servers.

Solution:

After adding a new vCenter Server target (see how to add a vCenter Server target), the real-time metric access component of the HP Operations agent requires up to three minutes to retrieve the data from newly added vCenter Servers. If you run these utilities at least three minutes after adding the new target, you can access all the data.

Troubleshooting with Policies

The *HP Operations Agent and Infrastructure SPIs 11.12* includes a set of HPOM policies that help you monitor the status of the HP Operations agent running on the virtual appliance. The policies are installed on the HPOM management server as soon as you register the deployment package of the HP Operations agent 11.12. You can then deploy the policies to the virtual appliance.

The policies are available in the following location in the HPOM console:

```
HP Operations Agent > SelfMonitoring-Additional > VMware vCenter
```

Policies to Monitor the HP Operations Agent on the Virtual Appliance

Policy Name	Type	Group	Description
VMWareVC-SelfMonCPUUsage	Measurement Threshold	HP Operations Agent > SelfMonitoring-Additional > VMware vCenter	Monitors the CPU consumption of the HP Operations agent on the virtual appliance.
VMWareVC-SelfMonDiskUsage	Measurement Threshold	HP Operations Agent > SelfMonitoring-Additional > VMware vCenter	Monitors the disk consumption of the HP Operations agent on the virtual appliance.
VMWareVC-SelfMonMemoryUsage	Measurement Threshold	HP Operations Agent > SelfMonitoring-Additional > VMware vCenter	Monitors the memory consumption of the HP Operations agent on the virtual appliance.
VMWareVC-SelfMonDBCorruptionMonitor	Logfile Entry	HP Operations Agent > SelfMonitoring-Additional > VMware vCenter	This policy checks that the HP Operations agent data store is healthy. If the policy detects data corruption in the HP Operations agent data store, alert messages are sent to the HPOM console.

Appendix A

Reference Page

oaconfig

The `oaconfig` tool helps you manage the monitoring of vCenters.

Synopsis

oaconfig -addtarget <*vCenter_name*>

oaconfig -deletetarget <*vCenter_name*>

oaconfig -testtarget <*vCenter_name*>

oaconfig -listtargets

oaconfig -purgelog <*time*>

Options

Option	Description
addtarget	Starts monitoring of a new vCenter target
deletetarget	Stops monitoring of a vCenter that is currently monitored by the HP Operations agent
testtarget	Tests the connectivity with a vCenter target.
listtargets	Lists all vCenter targets that are currently monitored by the HP Operations agent
purgelog	Deletes all the data collected before the specified time. You must specify the time in the following format: `YYYY-MM-DDThh:mm:ss`

Examples

- **oaconfig -addtarget vCenter_system1@domain.com**

  The HP Operations agent starts monitoring vCenter_system1@domain.com.
- **oaconfig -deletetarget vCenter_system2@domain.com**

  The HP Operations agent stops monitoring vCenter_system2@domain.com.
- **oaconfig -purgelog 2012-07-12T08:10:00**

All the data collected before 8:10 AM on July 12, 2012 is removed from the data store of the HP Operations agent on the virtual appliance.

Appendix B

vCenter Events

The HP Operations agent on the virtual appliance collects the following vCenter events by default:

- VmSuspendedEvent
- VmResumingEvent
- VmPoweredOffEvent
- VmPoweredOnEvent
- DrsEnteredStandbyModeEvent
- DrsExitedStandbyModeEvent
- DrsDisabledEvent:DrsEnabledEvent
- VmRenamedEvent
- VmRemovedEvent
- DrsVmPoweredOnEvent
- DrsVmMigratedEvent
- NotEnoughResourcesToStartVmEvent
- VmBeingHotMigratedEvent
- VmFailedMigrateEvent
- VmMigratedEvent
- VmDiskFailedEvent
- VmFailoverFailed
- VmNoNetworkAccessEvent
- VmUuidChangedEvent
- VmUuidConflictEvent
- VmOrphanedEvent
- HostRemovedEvent
- HostShutdownEvent

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