

Deployment and Configuration Guide

vCenter Operations Manager 5

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vCenter Operations Manager Deployment and Configuration Guide

The *vCenter Operations Manager Deployment and Configuration Guide* provides information about installing and upgrading VMware® vCenter Operations Manager.

Intended Audience

This guide is intended for anyone who wants to install or upgrade vCenter Operations Manager.

Introducing vCenter Operations Manager

1

vCenter Operations Manager is an application used to monitor and manage the health, capacity, and performance of your virtual environment.

vCenter Operations Manager includes the Standard, Advanced, and Enterprise Editions. All editions are available in vApp format.

This chapter includes the following topics:

- [“vCenter Operations Manager Architecture,”](#) on page 7
- [“vCenter Operations Manager and vCenter Server Connections,”](#) on page 8
- [“Integrating vCenter Operations Manager and the vSphere Client,”](#) on page 9
- [“vCenter Operations Manager Licensing,”](#) on page 9
- [“Certificate Warnings,”](#) on page 9
- [“How vCenter Operations Manager Uses Network Ports,”](#) on page 9
- [“Deployment Planning Worksheet,”](#) on page 10
- [“Finding More Information,”](#) on page 10

vCenter Operations Manager Architecture

vCenter Operations Manager is a vApp that you import and deploy with a vCenter Server system.

Understanding the vCenter Operations Manager vApp

vCenter Operations Manager is distributed as a vApp that you can import and deploy to a Virtualization platform, such as ESX. A vApp has the same basic operation as a virtual machine, but can contain multiple virtual machines or appliances. The same vApp exists for the Standard, Advanced, and Enterprise Editions.

Distribution Formats

The vApp is distributed as an Open Virtualization Format (OVF) file. The vSphere Client provides and import vApp workflow that guides you in deploying vApps in OVF format.

The vCenter Operations Manager vApp is managed using the Administration Portal which is a Web console for configuration and management tasks.

vApp Components

vCenter Operations Manager architecture consists of two virtual machines. The following section describes the vCenter Operations Manager key components of the vApp Architecture.

UI VM

The UI VM allows you to access the results of the analytics in the form of badges and scores using the Web-based application for the UI VM. It also allows you access the Administration Portal in order to perform management tasks. The applications in UI VM are described as follows:

vSphere Web Application	The vCenter Operations Manager vSphere UI provides a summary and deeper views into the vSphere environment.
Enterprise Web Application	The vCenter Operations Manager Enterprise application provides a customizable Web-base user interface. It is available using the Enterprise edition and provides a view into the entire enterprise.
Administration Web Application	The vCenter Operations Manager Administration Portal provides a user interface for vCenter Operations Manager maintenance and management tasks.

Analytics VM

The Analytics VM is responsible for collecting data from vCenter Server, vCenter Configuration Manager, and third party data sources, such as metrics, topology, and change events. Raw data is stored in its scalable File System Database (FSDB). The components in Analytics VM are described as follows:

Capacity and Performance Analytics	Checks the incoming metrics for abnormalities in real time, updates health scores, and generates alerts when necessary.
Capacity Collector	Collects metrics and computes derived metrics.
FileSystem Database	Stores the collected metrics statistics.
Postgres DB	Stores all other data collected, including objects, relationships, events, dynamic thresholds, and alerts.

vCenter Operations Manager and vCenter Server Connections

A single vCenter Operations Manager server can connect to one or to multiple vCenter Server instances. All communications between vCenter Operations Manager and vCenter Server take place over an SSL connection and are authenticated by public key certificates or stored certificates.

When vCenter Operations Manager is connected to multiple vCenter Server instances, you have a common view across all vCenter Server instances for all reporting features.

Basic Deployment

A basic deployment connects vCenter Operations Manager to a single vCenter Server.

Multi-Site Deployment

vCenter Operations Manager can connect to vCenter Server instances that are linked. These servers are required to have common logins. If you configure vCenter Operations Manager to connect to multiple vCenter Server instances, you must have login privileges to all the vCenter Server instances and use the same password for login.

Integrating vCenter Operations Manager and the vSphere Client

You can start vCenter Operations Manager from the vSphere Client.

To integrate with the vSphere Client, install the vCenter Operations Manager plug-in. After the plug-in is installed and you start the vSphere Client, it will discover the plug-in and load it automatically. After the plug-in is initialized and loaded, the **vCenter Operations Manager** icon is available under the **Solutions and Applications** section of the vSphere Client's home page. Click the icon to launch vCenter Operations Manager in a new view.

NOTE This functionality only works with the vSphere Client 4.0 Update 2 or later.

vCenter Operations Manager Licensing

vCenter Operations Manager and vCenter Server licensing are separate. You can purchase a product license for the Standard, Advanced, and Enterprise editions of vCenter Operations Manager.

A full license is a permanent license that gives you access to editions of vCenter Operations Manager and all updates. This license does not have an expiration date. For vCenter Operations Manager Standard and Advanced, the license is virtual machine based and sets the limit on how many virtual machines vCenter Operations Manager call pull data from. For vCenter Operations Manager Enterprise, the license is not virtual machine based and there are no limits on virtual machines or resources.

To apply a license key, see [“Assign the vCenter Operations Manager License,”](#) on page 21.

For more information about licensing, see the VMware licensing portal.

Certificate Warnings

When you access vCenter Operations Manager from a browser, security warnings are reported. Warnings are generated if the certificate is self-signed and not signed by a recognized Certificate Authority (CA) or the distinguished name field of the certificate does not match the hostname of the server. You must accept the certificate to proceed with the connection.

How vCenter Operations Manager Uses Network Ports

vCenter Operations Manager uses several different network ports to communicate with vCenter Server and vCenter Operations Manager components.

The vCenter Operations Manager client uses the following TCP ports to connect to the vCenter Operations Manager server. Configure your external firewalls so that these ports are open.

NOTE VMware does not support the customization of server ports.

Network Ports

The following table lists the default vCenter Operations Manager port access connections.

Table 1-1. Port Access Requirements for vCenter Operations Manager vApp

Port Number	Description
22	Enables SSH access to the vCenter Operations Manager vApp
80	Redirects to port 443

Table 1-1. Port Access Requirements for vCenter Operations Manager vApp (Continued)

Port Number	Description
443	Used to access the vCenter Operations Manager Admin Portal and the vCenter Operations Manager application
1194	Sets the tunnel between UI VM and Analytics VM

Deployment Planning Worksheet

Use the deployment planning worksheet to prepare for your vCenter Operations Manager deployment.

Table 1-2. Deployment Planning Worksheet

Component	Considerations
vCenter Server	Determine which vCenter Server you will deploy vCenter Operations Manager from. The vCenter Server must be compatible with vCenter Operations Manager. See “vCenter Server and ESX Requirements,” on page 14.
vCenter Server Network Parameters	Use the vSphere Client to configure the network parameters before you deploy the vCenter Operations Manager vApp. See “Configure Network Parameters for the vCenter Operations Manager vApp,” on page 17.
Port Number Assignments	Make sure that you configure your firewalls so that the following ports are open: <ul style="list-style-type: none"> ■ 22: Enables SSH access ■ 80: Redirects to port 443 ■ 443: vApp Admin UI and the vCenter Operations Manager application. ■ 1194: Tunnel for the UI VM and Analytics VM See “How vCenter Operations Manager Uses Network Ports,” on page 9 for port requirements.
vCenter Server Hostname or IP Address	Determine which Hostname or IP address vCenter Operations Manager will monitor and collect data from.
vCenter Server Password	You must have the administrator username and password for the vCenter Server vCenter Operations Manager will monitor and collect data from.
vCenter Operations Manager License	Obtain a license key and register vCenter Operations Manager. See “Assign the vCenter Operations Manager License,” on page 21.
VMware VirtualCenter Management Webservices	vCenter Operations Manager requires vCenter Server to run this service.
Time synchronization	The time of the ESX system that hosts the vCenter Operations Manager vApp and the vCenter Server must be synchronized. The vApp clock synchronizes with and depends on the ESX host clock.

Finding More Information

See the following documents for additional information about using vCenter Operations Manager.

vCenter Operations Manager Documentation

The vCenter Operations Manager 5.0 Release Note provides product overview and a description of known issues.

The vCenter Operations Manager Advanced Getting Started Guide provides information about the vCenter Operations Manager planning process.

The vCenter Operations Manager in-product help is a Web-based help system. Online help is available through the help menu and from context-sensitive links within the vCenter Operations Manager user interface.

The vCenter Operations Manager Admin Portal in-product help is a Web-based system. Online help is available through the help menu and from context-sensitive links within the Admin Portal user interface.

System Requirements

The following sections describe the compatibilities for vCenter Operations Manager. vCenter Operations Manager is compatible with the following vCenter Server versions and browsers and supports the listed vApp resource and sizing requirements.

This chapter includes the following topics:

- [“vCenter Operations Manager vApp Requirements,”](#) on page 13
- [“vCenter Server and ESX Requirements,”](#) on page 14
- [“vCenter Operations Manager Supported Browsers,”](#) on page 15

vCenter Operations Manager vApp Requirements

The following section lists the computing requirements and assumptions for the vCenter Operations Manager vApp.

Table 2-1. Aggregate Requirements for the two virtual machines in the vCenter Operations Manager vApp

Monitored Resources	Up to 1,500 Virtual Machines	Up to 3,000 Virtual Machines	Up to 6,000 Virtual Machines
Collected Metrics	600,000	1.2 Million	2.5 Million
vCPU	4 vCPU <ul style="list-style-type: none"> ■ UI VM: 2 vCPU ■ Analytics VM: 2CPU 	8 vCPU <ul style="list-style-type: none"> ■ UI VM: 4 vCPU ■ Analytics VM: 4 vCPU 	16 vCPU <ul style="list-style-type: none"> ■ UI VM: 8 vCPU ■ Analytics VM: 8 vCPU
Memory	16GB vRAM <ul style="list-style-type: none"> ■ UI VM: 7GB ■ Analytics VM: 9GB 	25GB vRAM <ul style="list-style-type: none"> ■ UI VM: 11GB ■ Analytics VM: 14GB 	34GB vRAM <ul style="list-style-type: none"> ■ UI VM: 13GB ■ Analytics VM: 21GB

Table 2-1. Aggregate Requirements for the two virtual machines in the vCenter Operations Manager vApp (Continued)

Monitored Resources	Up to 1,500 Virtual Machines	Up to 3,000 Virtual Machines	Up to 6,000 Virtual Machines
Disk Storage	900GB <ul style="list-style-type: none"> ■ UI VM: 100GB ■ Analytics VM: 800GB 	1.8TB <ul style="list-style-type: none"> ■ UI VM: 200GB ■ Analytics VM: 1.6TB 	3.6TB <ul style="list-style-type: none"> ■ UI VM: 400GB ■ Analytics VM: 3.2TB
Disk I/O for Analytics VM	1,500 IOPS	3,000 IOPS	6,000 IOPS

NOTE The disk size that is allocated does not change based on the size of the vApp. For larger deployments, you need to add additional disks. See [“Add a Hard Disk to a Virtual Machine,”](#) on page 30 for more information.

Configuration Assumptions

- Each CPU is at least 2 GHz.

To arrive at the number of metrics for each configuration, VMware assumes the following parameters for your environment:

- The VMware vCenter adapter is the only adapter running and collecting metrics.
- Each virtual machine has 250 to 300 metrics.
- Each ESX host has 1,200 to 1,500 metrics.
- The virtual machine to ESX host ratio is ten to one.

The number of metrics collected for each configuration will determine the requirements for vCPU, Memory, Disk Storage and Disk I/O for that configuration. The number of virtual machines is provided as a starting point to guide you in sizing your deployment. If your environment deviates from the assumptions specified, the number of metrics and requirements will vary.

Environments with a large number of datastores that are connected to many ESX hosts or that are running non-vCenter adapters will all contribute to significantly larger number of metrics for a given configuration. If the actual number of metrics is higher than the specified for a given virtual machine count, you will need to resize the deployment by linearly extrapolating the vCPU, Memory, Disk Storage and Disk I/O requirement to align with the actual metric count.

For example, if you have an environment with 1,500 virtual machines, but generating one million metrics, size the environment like a 1.2 million metric configuration.

vCenter Server and ESX Requirements

The vCenter Operations Manager vApp requires the following vSphere environment.

vCenter Operations Manager is compatible with:

- System that serves as the target of data collection: VMware vCenter Server 4.0 U2 or later
- System running the vApp: VMware vCenter Server 4.0 U2 or later
- Host running the vApp: ESX/ESXi 4.0 or higher

vCenter Server includes a service called VMware VirtualCenter Management Webservices.

vCenter Operations Manager requires vCenter Server to run this service.

vCenter Operations Manager Supported Browsers

The vCenter Operations Manager application supports the following browsers.

- Internet Explorer 7.0, 8.0, and 9.0
- Mozilla Firefox 3.6, 8.0, 9.0, and 10.0

If you use the vSphere Client to connect to the vCenter Operations Manager monitoring interface, verify that a supported Internet Explorer version is installed where the vSphere Client runs.

The minimum supported browser resolution is 1024 by 768 pixels.

Installing vCenter Operations Manager

3

The installation process for vCenter Operations Manager includes configuring network and clock settings, deploying and registering vCenter Operations Manager with a vCenter Server system, licensing the vCenter Operations Manager extension on the vCenter Server system, and granting user access.

This chapter includes the following topics:

- [“Configure Network Parameters for the vCenter Operations Manager vApp,”](#) on page 17
- [“Deploy the vCenter Operations Manager vApp,”](#) on page 18
- [“Set the ESX Host Time,”](#) on page 19
- [“Define the vCenter Server System to Monitor,”](#) on page 20
- [“Assign the vCenter Operations Manager License,”](#) on page 21
- [“Configure the SMTP and SNMP Settings for vCenter Operations Manager,”](#) on page 22
- [“Configure the Default Sender in Email Notifications,”](#) on page 22
- [“Install a Custom SSL Certificate for vCenter Operations Manager,”](#) on page 23
- [“Grant Access to vCenter Operations,”](#) on page 24

Configure Network Parameters for the vCenter Operations Manager vApp

Before you deploy the vCenter Operations Manager vApp, configure the network parameters to supply the information for the network. Use the vSphere Client to configure network parameters before you deploy the vApp and connect it to a network. Use the IP Pool configuration option to enter network parameters including the network base address, net mask, and the default gateway address. IP pools provide a network configuration that is assigned to a network used by a vApp. The vApp can then leverage vCenter Server to automatically provide an IP configuration to its virtual machines.

Prerequisites

- Identify the subnet and gateway information for the network that will be used for the virtual machine in the vApp.
- From a Windows virtual machine or system on the network, identify the DNS servers in your network with the `ipconfig /all` command and be prepared to use the name of one of those servers.
- Verify that you are connected to a vCenter Server system with the vSphere Client.

NOTE If you do not configure an IP pool, the vSphere Client reports network errors. Without IP Pool configuration, you will not be able to assign static IP addresses to the vApp.

Procedure

- 1 In the vSphere Client inventory, select the target datacenter for the vCenter Operations Manager deployment process.
- 2 Select the **IP Pools** tab.
- 3 Click **Add** to add a new IP pool.
- 4 In the properties dialog box, select the **IPv4** tab.
- 5 Type an IP pool name that you can recognize during future testing of IP pools.
- 6 Enter the **IP Subnet** and **Gateway** in their respective fields.
Do not select the **Enable IP Pool** checkbox and do not specify a range of IP addresses. You specify the IP address for the virtual machines in the vApp using the vApp OVF Deployment Wizard.
- 7 Select the **DHCP** tab.
- 8 Select the **IPv4 DHCP Present** check box if a DHCP server is available on this network.
- 9 Select the **DNS** tab.
- 10 Enter the DNS server information.
Enter the DNS Domain name of the DNS servers in your network in the IPv4 DNS Servers text box.
- 11 In the **Associations** tab, select the network for the IP pool.
Use this network when you configure a virtual machine network in the vApp OVF Deployment Wizard.
- 12 Click **OK**.

The IP pool facilitates the future use of a static IP address during the vApp deployment process. A DHCP deployment can work without an IP pool but generates warnings in the vSphere Client interface. You can ignore the warnings.

What to do next

Deploy the vCenter Operations Manager vApp.

Deploy the vCenter Operations Manager vApp

Download and deploy the vCenter Operations Manager vApp through the vSphere Client. VMware distributes the vApp as a .ova file.

Prerequisites

- Verify that you have permissions to deploy OVF templates to the inventory.
- Do not deploy vCenter Operations from an ESX host. Deploy only from vCenter Server.
- If the ESX host is part of a cluster, enable DRS in the cluster. If an ESX host belongs to a non-DRS cluster, all resource pool functionality is disabled.
- Verify that the virtual machine network that you connect this vApp to has an IP pool and select that network during the .ova deployment.
- Download the vCenter Operations Manager .ova file to a location that is accessible to the vSphere Client.
- If you download the vApp and the file extension is .tar, change the file extension to .ova.
- Verify that you are connected to a vCenter Server system with the vSphere Client.
- Do not select the transient IP allocation scheme during the deployment wizard. vCenter Operations Manager supports only fixed and DHCP IP allocation.

Procedure

- 1 In the vSphere Client, select **File > Deploy OVF Template**.
- 2 Follow the prompts in the Deploy OVF Template wizard.
- 3 Select a disk format.
 - **Thick Provision Lazy Zeroed** creates a virtual disk in a default thick format.
 - **Thick Provision Eager Zeroed** creates a type of thick virtual disk that supports clustering features such as Fault Tolerance.
 - **Thin Provision** creates a disk in thin format. Use this format to save storage space.

NOTE Thick provisioned eager-zeroed format provides about a 10 percent performance improvement over the other two disk formats. VMware recommends that you select the thick provisioned eager-zero option when possible.

NOTE Snapshots can negatively affect the performance of a virtual machine and typically result in a 25-30 percent degradation for the vCenter Operations Manager workload. VMware recommends that you do not use Snapshots.

- 4 When you specify an IP allocation scheme, select Fixed or DHCP IP allocation and click **Next**.
Fixed IP allocation requires you to provide two IP addresses for the two virtual machines in the vApp.
DHCP allocation requires that you enabled DHCP in your IP pool.
- 5 Click **Finish** and wait for the deployment process to end.

NOTE Because of the size of the vCenter Operations Manager vApp, the deployment process can take significantly longer than deploying smaller virtual machines. It may appear that the deployment hangs when you wait for the deployment process to end. This is the expected behavior when deploying vCenter Operations Manager.

The vApp appears as a virtual machine in the inventory.

- 6 Power on the vCenter Operations Manager virtual machine.
- 7 Select the vCenter Operations Manager virtual machine and check its IP address on the **Summary** tab.

The vCenter Server inventory shows the vApp that contains two child objects named UI VM and Analytics VM.

What to do next

Set the ESX Host time.

Set the ESX Host Time

Set the time of the ESX system that hosts the vCenter Operations Manager vApp. The vApp clock synchronizes with and depends on the ESX host clock.

vCenter Operations Manager depends on the accuracy of the ESX host clock.

Prerequisites

Deploy the vCenter Operations Manager vApp.

The time of the ESX host and the vCenter Server must be synchronized.

Procedure

- 1 In the vSphere Client, select the host in the inventory.
- 2 In the Software section of the **Configuration** tab, click **Time Configuration**.
- 3 Click **Properties** to adjust the time and click **OK**.

The vCenter Operations Manager vApp synchronizes time with the ESX host time.

What to do next

Define the vCenter Server system to monitor.

Define the vCenter Server System to Monitor

Before you can use the vCenter Operations Manager vApp, you must define the vCenter Server system to monitor and collect data from.

Prerequisites

- Verify that the vCenter Operations Manager vApp is powered on.
- Set the time of the ESX host to ensure that the time settings of the vApp synchronizes with the time settings of the ESX host. For information about the host clock, see [“Set the ESX Host Time,”](#) on page 19.
- Set the time of vCenter Server to ensure that the time settings of the vApp synchronizes with the time settings of vCenter Server.
- Synchronize the time of the vCenter Server system with a standard time source. For information about setting up the Windows Time service, see the Microsoft knowledge base article 307897 on the Microsoft Web site.
- Verify that the vCenter Operations Manager main login page appears when you copy the vApp IP address from the **Summary** tab of the vSphere Client into a browser.
- If vCenter Operations Manager detects an earlier version of a product that supports upgrades to vCenter Operations Manager, be prepared to upgrade or migrate your data during the initial registration process. For information about updating vCenter Operations Manager, see [“Upgrade the Virtual Appliances to the vCenter Operations Manager vApp,”](#) on page 31.
- VMware recommends that users should be Active Directory users.
- In non-linked multi-vCenter Server system configuration, users with the same username but different passwords in different domains will not be able to log in to vCenter Operations.
- In linked vCenter Server system configuration, register each vCenter Server individually. If you register only one of the linked vCenter Server systems, no data displays for the other vCenter Server system.

Procedure

- 1 Log in to the vCenter Operations Manager main application with the default credentials of **admin** as the user name and **admin** as the password.

The URL format is `https://<IP>/admin` where <IP> is the IP address or fully qualified host name of the vApp.

This first-time login process opens the First Boot Wizard.

- 2 Update the administrator password that provides access to the Administration Portal and SSH access to the vApp.

The password requires a minimum of eight characters that include at least one letter and one digit or special character.

- 3 Update the root password for the operation system of the vApp.
- 4 Type a name for the vCenter Server system.
This name is for your reference when you monitor the vCenter Server system and does not affect the object in the actual virtual infrastructure.
- 5 Type the IP address or fully qualified domain name of the vCenter Server system to monitor and from which to collect information.
- 6 Type the registration credentials for vCenter Operations Manager to use when connecting to the vCenter Server system.
The user you provide must have administrator privileges on the vCenter Server system.
- 7 (Optional) Type the collection credentials for vCenter Operations Manager to use when collecting data from vCenter Server objects.
You can use the same registration credentials that access all of the vCenter Server objects or limited credentials for a subset of the inventory.
- 8 (Optional) To check if vCenter Operations Manager can connect to the vCenter Server system, click **Test**.
A message appears with information on the test result.
- 9 If you have linked vCenter Server systems, select the appropriate members of the linked group to register with and provide a name for each system.
You can register vCenter Operations Manager with a subset of vCenter Server systems for scalability or inventory management purposes. Each vCenter Server must be registered individually.
- 10 Click **Save** to apply the changes.

The selected vCenter Server system appears in the **Registration** tab of the Administration Portal.

If you were already logged in to the vSphere Client when you registered vCenter Operations Manager, reconnect the vSphere Client to see the vCenter Operations Manager icon.

What to do next

Assign a license key for the vCenter Operations Manager vApp in the vSphere Client.

Assign the vCenter Operations Manager License

Assign a license for vCenter Operations Manager. vCenter Operations Manager is registered as an extension to the vCenter Server system and appears as a license asset on the vSphere Client Licensing page.

Prerequisites

- Verify that you installed the vCenter Operations Manager vApp and registered it to the vCenter Server system to monitor.
- If you were already logged in to the vSphere Client when you defined the vCenter Server system to monitor, reconnect the vSphere Client.
- Review the general licensing requirements. For information about evaluation and full licensing, see [“vCenter Server and ESX Requirements,”](#) on page 14.

Procedure

- 1 Log in to the registered vCenter Server system.
- 2 In the vSphere Client, select **Home > Licensing**.
- 3 From the View by options, select **Asset**.
- 4 In the list of assets, right-click your vCenter Operations edition and select **Change License Key**.

- 5 In the Assign License window, select **Assign a new license key to this solution**.
- 6 Click **Enter Key**.
- 7 Type the new license key and click **OK**.
The license key appears in the Assign License window.
- 8 Click **OK** to assign the license key.

The vSphere Client assigns the new license key to vCenter Operations Manager.

What to do next

Configure the SMTP and SNMP settings for vCenter Operations Manager.

Configure the SMTP and SNMP Settings for vCenter Operations Manager

Configure an optional SMTP server to activate email service for reports and for notification messages when a problem occurs.

Administrative alerts occur when vCenter Operations Manager detects a problem with one or more of its components and cannot collect data from the monitored objects.

Prerequisites

- Verify that the vCenter Operations Manager vApp is powered on.
- Verify that you have administrator privileges to access the Administration portal and log in to the portal.

Procedure

- 1 On the **SMTP** tab, select the **Enable report email service** check box.
- 2 Type the SMTP server address and port number.
- 3 Type the name and email address to use when sending alerts or reports.
- 4 If the SMTP server uses an encrypted connection, select the **Server requires an encrypted connection** check box and select the encryption protocol.
- 5 If the email service needs to authenticate with the SMTP server when sending alerts, select the **Outgoing SMTP server requires authentication** check box and type the credentials.
- 6 Select the **Enable SNMP** check box and type the destination host, port, and community information.
- 7 Click **Update** to apply your settings.

vCenter Operations can send email notifications and scheduled reports.

What to do next

Install a custom SSL certificate for vCenter Operations Manager .

Configure the Default Sender in Email Notifications

An email plug-in is installed with vCenter Operations Manager and is used for email notifications. The only option available for this plug-in is to use set default values for the sender field. You can set the default to use Fully Qualified Domain Names for email messages.

By default, the email plug-in uses the IP address of the Analytics VM for the sender field of the email notification. If you want to change the default, you can configure the plug-in to use an Fully Qualified Domain Name for the sender field.

Prerequisites

Verify that you have administrator privileges to access the Analytics VM.

Verify that you have administrator privileges to access the Administration portal and log in to the portal.

Procedure

- 1 In the vSphere Client inventory, locate the Analytics VM and log in as admin.
- 2 Edit the `/usr/lib/vmware-vcops/user/conf/email.properties` file and add the following property:
`emailPlugin.alwaysResolveHostName=true`

When the `alwaysResolveHostName` property is set to `true`, the email plug-in attempts to resolve the Fully Qualified Domain Name of the Analytics VM. If that fails, a default host name is used that is set by the Java mail API.
- 3 To override the Java mail API default host name if the Fully Qualified Domain Name fails to resolve, set the following additional property: `emailPlugin.defaultHostName=<hostname_to_be_used>`
- 4 From the Administration Portal, select the SMTP tab and deselect the Enable SMTP check box.
- 5 Select the Enable SMTP check box to enable the SMTP configuration.

vCenter Operations Manager can send email notifications with Fully Qualified Domain Names in the sender field.

Install a Custom SSL Certificate for vCenter Operations Manager

vCenter Operations Manager installs a self-signed SSL certificate on the vApp. The self-signed certificate generates security warnings when you connect to the vCenter Operations Manager interface. If you do not want to use a self-signed security certificate, you can install a custom SSL certificate. This task is optional and does not affect the vCenter Operations Manager features.

Prerequisites

- Verify that the vCenter Operations Manager virtual appliance is powered on.
- Verify that you are logged in to the vCenter Operations Manager Administration page.
The URL format is `https://VM-IP/admin/`, where *VM-IP* is the IP address or fully qualified host name of the *UI VM* virtual machine that is part of the vCenter Operations Manager virtual appliance.
- Verify that your custom SSL certificate meets the following requirements.
 - The certificate file contains both a valid private key and a valid certificate chain.
 - The private key is generated by the RSA or the DSA algorithm.
 - The private key is not encrypted by a pass phrase.
 - If the certificate is signed by a chain of other certificates, all other certificates must be included in the certificate file that you plan to import
 - All the certificates and the private key that are included in the certificate file are must be PEM-encoded. vCenter Operations Manager does not support DER-encoded certificates and private keys.
 - All the certificates and the private key that are included in the certificate file must be in the PEM format. vCenter Operations Manager does not support certificates in the PFX, PKCS12, PKCS7, or other formats.

Procedure

- 1 Click the **SSL Certificate** tab.

- 2 Click **Browse**, locate the certificate file, and click **Open** to load the file in the Certificate field.
The file extension of the certificate file that you want to import does not matter. However the certificate file must contain both a valid private key and a valid certificate chain.
- 3 Type the certificate password and alias name.
- 4 Click **Upload** to replace the default self-signed certificate on the vCenter Operations vApp.

The custom certificate replaces the default self-signed certificate that vCenter Operations Manager installed.

What to do next

Grant access to vCenter Operations Manager.

Grant Access to vCenter Operations

Assign privileges in the vSphere Client to grant access to vCenter Operations Manager.

You can perform all operations in vCenter Operations Manager as a vCenter Server administrator or with the **vCenter Operations Admin** global privilege. You can access vCenter Operations Manager as an individual user without the ability to perform global operations with the **vCenter Operations user** global privilege.

Prerequisites

- Register vCenter Operations Manager with a vCenter Server system. The registration process generates vCenter Operations Manager privileges under Global privileges in the vSphere Client.
- Restart the vSphere Client before you assign privileges.
- Understand the process of creating and editing roles to assign privileges to in the vSphere Client. For more information about roles and privileges, see the VMware vSphere documentation.

Procedure

- 1 Restart the vSphere Client.
- 2 From the vSphere Client Home page, click **Roles**.
- 3 Add a vCenter Operations Manager privilege under Global privileges to a new or existing role.
 - Select the **vCenter Operations Admin** privilege to provide power user access to all operations at the individual or global level.
 - Select the **vCenter Operations user** privilege to provide access to all of the operations and customization options in the main vCenter Operations interface that do not affect global settings or global thresholds.

NOTE With the **vCenter Operations User** global privilege, you can view the objects that you have read access to within vCenter Server.

- 4 In the inventory tree, right-click the root vCenter Server folder and select **Add Permission**.
- 5 Assign the new or existing role to the user who accesses vCenter Operations Manager.
- 6 From the Inventory tree, right-click the top level object and select **Add Permission**.
- 7 Assign the new or existing role to the user who accesses vCenter Operations Manager.

After a user gains privileges, the user can log in to the vSphere Client and access vCenter Operations Manager. The vCenter Operations Manager icon appears in the vSphere Client.

What to do next

Verify the vCenter Operations Manager installation.

Verifying the vCenter Operations Manager Installation

4

This chapter includes the following topics:

- [“Verifying the vCenter Operations Manager Installation from the vSphere Client,”](#) on page 25
- [“Verify the vCenter Operations Manager Installation from a Browser,”](#) on page 26

Verifying the vCenter Operations Manager Installation from the vSphere Client

Verify that vCenter Operations Manager is installed so that you can start monitoring your virtual environment from the vSphere Client.

Prerequisites

- Complete the installation, licensing, and registration process for the vCenter Operations Manager vApp.
- Verify that you have a supported browser on the machine where the vSphere Client runs. For information about browser requirements, see [“vCenter Server and ESX Requirements,”](#) on page 14.

Procedure

- 1 Log in to the vCenter Server system and locate the vCenter Operations Manager icon in the Solutions and Applications pane of the Home page.
- 2 Click the icon to open your edition of vCenter Operations Manager.
You can ignore the certificate warnings that might appear.
- 3 Look at the dashboard and verify that the inventory objects you expect to see appear.

If you set collection credentials during the registration process, you can see only the objects that the collection credentials provide read access to in the vSphere Client. If you have linked vCenter Server systems, you can see only the vCenter Server objects that are connected to that vSphere Client instance.

vCenter Operations Manager starts collecting data. As it becomes available, more information is displayed in vCenter Operations Manager. This process might take a few minutes. The availability of some metrics depends on the vCenter Server and ESX host versions.

NOTE Even if you do not have privileges to view certain inventory objects, the performance data for these objects is used when calculating metrics for higher inventory levels. For example, you might not have privileges to monitor an ESX host, but the data for its performance is calculated in the Datacenter performance metrics that you can view.

Verify the vCenter Operations Manager Installation from a Browser

Verify that vCenter Operations Manager is installed so that you can start monitoring your virtual environment from a browser.

Prerequisites

- Complete the installation, licensing, and registration process for the vCenter Operations Manager vApp.
- Use a supported browser. For information about browser requirements, see [“vCenter Server and ESX Requirements,”](#) on page 14.

Procedure

- 1 Enter the vCenter Operations Manager URL in a supported browser. The URL format is `https://<IP>/admin` where <IP> is the IP address or fully qualified host name of the vApp.
- 2 Log in to the vCenter Operations Manager main application with the default credentials of **admin** as the user name and **admin** as the password.
- 3 Look at the dashboard and verify that the inventory objects you expect to see appear.

vCenter Operations Manager starts collecting data. As data becomes available, more information is displayed in vCenter Operations Manager. This process might take a few minutes. The availability of some metrics depends on the vCenter Server and ESX host versions.

NOTE Even if you do not have privileges to view certain inventory objects, the performance data for these objects is used when calculating metrics for higher inventory levels. For example, you might not have privileges to monitor an ESX host, but the data for its performance is calculated in the Datacenter performance metrics that you can view.

Installing a vCenter Operations Manager Adapter

5

This chapter describes how to install and configure an adapter on the vCenter Operations Manager vApp.

Install an Adapter on a vApp

Follow this procedure to install the Text File adapter if you have a vCenter Operations Manager Advanced vApp installation.

Prerequisites

- Obtain the PAK file for the adapter from VMware technical support.
- Read the documentation that is included with the PAK file. It might contain additional installation instructions.

Procedure

- 1 Save the PAK file in a temporary folder.
- 2 Start the Admin UI and log in as an administrator.
For example: `https://ipaddress/admin/`
- 3 On the **Update** tab, browse to the location of the PAK file and click **Update** to start the update process.
The status of the update process appears in the bottom pane.
- 4 Start the Custom UI and log in as an administrator.
For example: `https://ipaddress/vcops-custom/`
- 5 Select **Admin > Support**.
- 6 On the **Info** tab, click the **Describe** icon in the Adapters pane.

vCenter Operations Manager Advanced finds the adapter files, gathers information about the abilities of the adapter, and updates the user interface with information about the adapter.

Updating vCenter Operations Manager

6

vCenter Operations Manager provides an upgrade path for the vApp.

This chapter includes the following topics:

- [“Updating Virtual Appliance Software to the vCenter Operations Manager vApp,”](#) on page 29
- [“Upgrade Paths for vCenter Operations Manager,”](#) on page 29
- [“Upgrade Requirements,”](#) on page 30
- [“License Considerations for the vCenter Operations Manager Upgrade,”](#) on page 30
- [“Add a Hard Disk to a Virtual Machine,”](#) on page 30
- [“Upgrade the Virtual Appliances to the vCenter Operations Manager vApp,”](#) on page 31
- [“Transition from the Old Virtual Appliances to the New vCenter Operations Manager vApp,”](#) on page 32

Updating Virtual Appliance Software to the vCenter Operations Manager vApp

The upgrade process for the vCenter Operations Manager vApp involves a data migration in which the source virtual appliance can continue to run after the upgrade process.

Upgrade Paths for vCenter Operations Manager

The VMware vCenter Operations Manager vApp supports upgrade paths from CapacityIQ and vCenter Operations Manager Standard.

Upgrade Version Requirements for vCenter Operations Manager

The vCenter Operations Manager vApp supports the upgrade of CapacityIQ and vCenter Operations Manager Standard to vCenter Operations Manager.

Table 6-1. Version Requirements to Upgrade to vCenter Operations Manager vApp

Software	Upgrade Options
Separate instances of CapacityIQ 1.5.1 and vCenter Operations Manager Standard 1.0 or 1.0.x	vCenter Operations Manager 5.0 vApp vCenter Operations Manager Enterprise 5.0 vApp
CapacityIQ 1.5.1	vCenter Operations Manager 5.0 vApp vCenter Operations Manager Enterprise 5.0 vApp
vCenter Operations Manager Standard 1.0 or 1.0.x	vCenter Operations Manager Standard 5.0 vApp vCenter Operations Manager 5.0 vApp vCenter Operations Manager Enterprise 5.0 vApp

You cannot upgrade multiple instances of vCenter Operations Manager Standard or multiple instances of CapacityIQ.

Upgrade Requirements

The following sections describe the upgrade requirements for vCenter Operations Manager.

vApp Disk Space Requirements for Upgrades

For an upgrade to vCenter Operations Manager 5.0, the following amount of disk space configurations for UI VM and Analytics VM is required.

Table 6-2. Disk Space Requirements for Upgrading to vCenter Operations Manager 5.0

Resource	Minimum Requirement
UI VM	Disk 1: 4GB Data Disks: 250GB
Analytics VM	Disk 1: 4GB Data Disks: 120GB

License Considerations for the vCenter Operations Manager Upgrade

When you upgrade CapacityIQ and vCenter Operations Manager Standard to vCenter Operations Manager, consider the number of licenses that you must receive for an edition.

If you did not purchase the same number of licenses for CapacityIQ and vCenter Operations Manager Standard, and you want to upgrade your environment to vCenter Operations Manager, you must determine the number of licenses to receive.

Add a Hard Disk to a Virtual Machine

You may need to add virtual disks to the UI VM and Analytics VM to support disk size requirements. Use the vSphere Client to add a hard disk to a virtual machine.

For each virtual machine in the vApp that needs more disk space, add a new hard disk to the virtual machine. You can add multiple disks as vCenter Operations Manager will mount and format all of them into the same logical disk where vCenter Operations Manager data is stored.

Prerequisites

- Verify that you have read the system requirements for vCenter Operations Manager upgrades. See [“vCenter Server and ESX Requirements,”](#) on page 14 for details.
- Verify that the vCenter Operations Manager vApp is powered off.

Procedure

- 1 In the vSphere Client inventory, right-click the virtual machine and select **Edit Settings**.
- 2 Click the **Hardware** tab and click **Add**.
- 3 Select **Hard Disk** and click **Next**.
- 4 Select **Create a new virtual disk** and click **Next**.
 - a Type the disk capacity.
 - b Select a disk format.
 - **Thick Provision Lazy Zeroed** creates a virtual disk in a default thick format.
 - **Thick Provision Eager Zeroed** creates a type of thick virtual disk that supports clustering features such as Fault Tolerance.
 - **Thin Provision** creates a disk in thin format. Use this format to save storage space.

NOTE Thick provisioned eager-zeroed format provides about a 10 percent performance improvement over the other two disk formats. VMware recommends that you select the thick provisioned eager-zero option when possible.

NOTE Snapshots can negatively affect the performance of a virtual machine and typically result in a 25-30 percent degradation for the vCenter Operations Manager workload. VMware recommends that you do not use Snapshots.

 - c If you specify a datastore, browse for the datastore location, and click **Next**.
- 5 Accept the default virtual device node.
- 6 Click **Next**.
- 7 Review the information and click **Finish**.
- 8 Click **OK** to save your changes and close the dialog box.

What to do next

After you finishing adding new disks for the UI VM and Analytics VM, power on the vApp. The virtual machine discovers the new disk and adds it to the data volume.

Upgrade the Virtual Appliances to the vCenter Operations Manager vApp

The first time you register vCenter Operations Manager with a vCenter Server system, vCenter Operations Manager detects existing CapacityIQ or vCenter Operations Manager Standard virtual appliances and triggers an upgrade wizard. Subsequent registration operations do not trigger this upgrade and data migration process.

Prerequisites

- Understand the initial registration process that triggers the upgrade and data migration. For information about the registration process, see [“Define the vCenter Server System to Monitor,”](#) on page 20.
- Check the vCenter Operations Manager Release Notes for the latest information about upgrading vCenter Operations Manager and supported versions for the upgrade process.
- Decide when to apply the update. The source vCenter Operations Manager or CapacityIQ services are unavailable during parts of the update process but vCenter Operations Manager brings those services up again. After data migration vCenter Operations Manager starts services on the source virtual appliance. The source virtual appliance can continue to run from that point on.

- Identify the exact name of the vCenter Server used during the initial vCenter Operations 1.x or Capacity IQ 1.5.1 configuration and make sure that the same name is used during the upgrade.
- Identify the time zone setting used in the initial vCenter Operations 1.x or Capacity IQ 1.5.1 configuration. After the upgrade, you can set the vCenter Operations Manager vApp time zone to be the same if you want to keep the same scheduled times for generated reports.

Procedure

- 1 Log in to the Administration Portal with the default credentials of **admin** as the user name and **admin** as the password.
The URL format is `https://<IP>/admin` where <IP> is the IP address or fully qualified host name of the vApp.
- 2 Start the process of defining a vCenter Operations Manager to monitor for the first time to the point of specifying registration and collection credentials.
When you specify the credentials, vCenter Operations Manager detects existing instances of vCenter Operations Manager Standard and CapacityIQ.
- 3 Select the CapacityIQ or vCenter Operations Manager Standard plug-in to import data from and type the root credentials.
If you do not import data from any of the virtual appliances, the registration process proceeds to detect any linked vCenter Server systems and follows the registration workflow.
- 4 Confirm to start the upgrade process and migrate data from the source virtual appliances.
The upgrade process shuts down the old virtual appliances, copies the data, and brings the appliances back up.
- 5 (Optional) To check the status and remaining time of the data migration, log in to the Administration Portal and click the **Update** tab.
If the login page appears blank, press **F5** to refresh the page.

The **Update** tab displays the status of the update.

What to do next

Monitor the old virtual appliances and new vCenter Operations Manager vApp before transitioning completely to the new vApp.

Transition from the Old Virtual Appliances to the New vCenter Operations Manager vApp

Monitor the new deployment of vCenter Operations Manager before removing the old CapacityIQ and vCenter Operations Manager Standard virtual appliances.

To set aside some time to verify the new vCenter Operations Manager installation, continue to monitor the old virtual appliances after the upgrade. The upgrade process shuts down and brings the old appliances back up.

Prerequisites

Upgrade CapacityIQ or vCenter Operations Manager Standard to the vCenter Operations Manager vApp.

Procedure

- 1 Monitor the new deployment of the vCenter Operations Manager vApp along with the old deployment of CapacityIQ or vCenter Operations Manager Standard for one to two months.
- 2 When you feel comfortable with the new deployment, unregister the old virtual appliances in the Administration Portal.

3 Remove the virtual appliances.

You have completed the transition to the vCenter Operations Manager vApp environment.

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