

Deploying and Configuring vCloud Usage Meter

vCloud Usage Meter 4.2

You can find the most up-to-date technical documentation on the VMware website at:

<https://docs.vmware.com/>

VMware, Inc.
3401 Hillview Ave.
Palo Alto, CA 94304
www.vmware.com

Copyright © 2020 VMware, Inc. All rights reserved. [Copyright and trademark information.](#)

Contents

- 1 What is vCloud Usage Meter 4**
- 2 Before you begin with vCloud Usage Meter 5**
- 3 How do I set up vCloud Usage Meter 7**
 - How do I deploy vCloud Usage Meter 8
 - How do I configure a network protocol profile for vCloud Usage Meter 9
 - How do I install a Certification Authority(CA)-signed SSL certificate 9
 - How do I access the vCloud Usage Meter Web interface 11
 - Accessing the vCloud Usage Meter Web interface for the first time 12
 - How do I set up a proxy server 12
- 4 Upgrading vCloud Usage Meter 14**
 - In-Place upgrade of vCloud Usage Meter 14
 - How do I migrate product configuration data to vCloud Usage Meter 4.2 16
- 5 What else can I do with vCloud Usage Meter 18**

What is vCloud Usage Meter

1

vCloud Usage Meter is a virtual appliance that meters and collects data for products that are part of the VMware Cloud Provider Program. vCloud Usage Meter is installed on a vCenter Server instance.

What data does vCloud Usage Meter collect?

vCloud Usage Meter collects product consumption data from vCenter Server instances and other products.

- Collected data from the vCenter Server instances includes DNS name, physical memory (RAM), and license type.
- Collected data from the virtual machine includes the metered product name, hostname, allocated and billing virtual memory (vRAM), CPU, and instance universal unique identifier (UUID).
- Collected data from products includes billing vRAM, and other metrics specific to the metered product.

How does vCloud Usage Meter report monthly product consumption data?

vCloud Usage Meter works in conjunction with vCloud Usage Insight, which is a service that aggregates the data collected from vCloud Usage Meter instances, and automatically pre-fills it into the Commerce Portal. To automatically report and pre-fill your aggregated monthly product consumption data from vCloud Usage Meter into the Commerce Portal, you must register your vCloud Usage Meter instances with Commerce Portal.

For information about the VMware Cloud Provider Program, see <http://www.vmware.com/partners/service-provider>.

Before you begin with vCloud Usage Meter

2

To collect accurate usage data, vCloud Usage Meter requires a specific configuration of the metered vCenter Server instances. To access the vCloud Usage Meter Web interface, you must allow access on the appropriate TCP ports.

Lookup Service

Before connecting to the vCenter Server instance, the vCloud Usage Meter appliance must connect to the vCenter Single Sign-On Lookup Service that resides in the Platform Services Controller with which your vCenter Server instance is registered. If you use an external Platform Services Controller, enter the IP address of the external Platform Services Controller when registering your vCenter Server in the vCloud Usage Meter Web interface. If you use an embedded Platform Services Controller, enter the IP address of the vCenter Server instance. vCloud Usage Meter takes the default port number of the Lookup Service to be *7444*.

If you do not set up the connection properly, on the **Notification** tab of the Web interface, all vCenter Server collections fail with the following error message: *Unable to connect vCenter-Server-or-IP-address:7444*.

vCenter Server Clusters

Service providers normally host customer and administrative virtual machines on a single vCenter Server instance. Tenants consume compute resources from the customer virtual machines, whereas service providers use the administrative virtual machines for internal purposes. To ensure accurate reporting to service providers and to VMware, you must apply a degree of separation between customer and administrative virtual machines. The best practice is to create a dedicated cluster for each type. For example, create a *Customer* cluster to host all customer virtual machines and a *Management* cluster to host all virtual machines that are vital to the service provider business operations. The separation of the virtual machines based on their function, ensures that vCloud Usage Meter reports do not contain mixed usage data of customer and administrative virtual machines.

ESXi Licenses

After you create dedicated clusters for the virtual machines based on their functions, you must assign proper ESXi licenses to the cluster hosts.

TCP Ports

vCloud Usage Meter uses predefined TCP ports. If you manage network components from outside a firewall, you might need to configure the firewall to allow access to the appropriate ports.

Table 2-1. Configuration of TCP Ports for vCloud Usage Meter

Port	Source	Target	Purpose
443	vCloud Usage Meter	vCenter Server	vSphere API. If the default value does not work for you, you can change it.
8443	Client browser	vCloud Usage Meter	Used for the Web interface.

How do I set up vCloud Usage Meter

3

vCloud Usage Meter is a virtual appliance that you deploy by using the vSphere Web Client. To set up the virtual appliance, you must set the required passwords, configure your network, and add a vCenter Server instance for metering.

The size of your data set and the vCenter Server inventories that vCloud Usage Meter meters, affect its speed of data collection, so you must note system requirements and metering capacities. For large data sets and vCenter Server inventories, consider deploying more than one vCloud Usage Meter appliance. You can consolidate the reported data from multiple virtual appliances in monthly reports to your VMware Cloud Provider Program aggregator.

To avoid configuration problems and ensure accurate metering of products, the vCloud Usage Meter date and time must be synchronized with the date and time of the metered products. As a best practice, use the same NTP server for the vCloud Usage Meter appliance and the metered products.

- [How do I deploy vCloud Usage Meter](#)

You deploy the vCloud Usage Meter appliance by using the vSphere Web Client.

- [How do I configure a network protocol profile for vCloud Usage Meter](#)

When you deploy vCloud Usage Meter, you must create an associated network protocol profile.

- [How do I install a Certification Authority\(CA\)-signed SSL certificate](#)

To establish a secure network connection to the vCloud Usage Meter Web interface, you must install a CA-signed SSL certificate on the vCloud Usage Meter appliance.

- [How do I access the vCloud Usage Meter Web interface](#)

You log in to the vCloud Usage Meter Web interface to configure the appliance and to add vCenter Server instances for metering. To access the vCloud Usage Meter Web interface, you need the vCloud Usage Meter host name or IP address.

- [Accessing the vCloud Usage Meter Web interface for the first time](#)

If you are accessing the vCloud Usage Meter Web interface for the first time, you must configure the initial vCloud Usage Meter web interface wizard.

- [How do I set up a proxy server](#)

To report usage data to vCloud Usage Insight, vCloud Usage Meter requires a connection to the Internet. To establish a connection between vCloud Usage Meter and the Internet, you must configure a proxy server.

How do I deploy vCloud Usage Meter

You deploy the vCloud Usage Meter appliance by using the vSphere Web Client.

Prerequisites

- Download the vCloud Usage Meter OVA file from the My VMware download product page and save it locally.
- You must have access and sufficient privileges to deploy an OVA file by using the vSphere Web Client.

Procedure

- 1 Log in to the vSphere Web Client as a user who has sufficient privileges to deploy an OVA file.
- 2 In the vSphere Web Client, navigate to **Hosts and Clusters**.
- 3 Right-click a target host or cluster for your vCloud Usage Meter appliance, and select **Deploy OVF Template**.
- 4 In the **Deploy OVF Template** wizard, navigate to the vCloud Usage Meter OVA file, and click **Next**.
- 5 Enter a unique name for the vCloud Usage Meter appliance, select the target deployment location, and click **Next**.
- 6 On the **Select a compute resource** page, select the deployment target resource in which to run the vCloud Usage Meter appliance, and click **Next**.

You can choose a cluster, a host, a vApp, or a resource pool.

- 7 Verify the OVF template details and click **Next**.
- 8 Review and accept the end-user license agreement, and click **Next**.
- 9 On the **Select storage** page, select where and how to store the vCloud Usage Meter files.
Select the virtual disk format, the VM storage policy, and the datastore for the appliance.
- 10 Select a network for the deployed template and click **Next**.

By default, the appliance is deployed with IP allocation set to DHCP and protocol set to IPv4. Do not change the IP protocol to IPv6.

- 11 Set the passwords for the **root**, **usagemeter**, and **umauditor** accounts.

The **umauditor** user account has read-only access to the configuration and log files.

Note Keep a record of the **root** password. The **root** password cannot be recovered, but can be reset. See [How do I reset the root password](#) for instructions about changing the vCloud Usage Meter **root** password.

- 12 On the **Ready to complete** page, review the information and click **Finish**.

Important To avoid compliance issues with VMware Cloud Provider Program, do not clone vCloud Usage Meter appliances. If you need an additional vCloud Usage Meter instance, you must deploy a new vCloud Usage Meter appliance.

Results

The default time zone of the deployed vCloud Usage Meter appliance is UTC and it cannot be changed.

What to do next

Set the vCloud Usage Meter appliance vRAM as needed. Most service providers can run well with 3600 MB (default). Memory use can be monitored on the **Support** page and adjusted as needed.

How do I configure a network protocol profile for vCloud Usage Meter

When you deploy vCloud Usage Meter, you must create an associated network protocol profile.

Because the OVF template uses network properties, vCloud Usage Meter might not work correctly unless the assigned networks have an associated network protocol profile. If not, the vCloud Usage Meter appliance does not power on and users get a message that there is no associated network protocol profile.

To configure a network protocol profile for your vCloud Usage Meter appliance, you must use an IPv4 configuration.

For more information about configuring a network protocol profile, see [Add a Network Protocol Profile](#) in the *VMware vSphere Documentation*.

How do I install a Certification Authority(CA)-signed SSL certificate

To establish a secure network connection to the vCloud Usage Meter Web interface, you must install a CA-signed SSL certificate on the vCloud Usage Meter appliance.

After you deploy vCloud Usage Meter, the appliance generates a self-signed SSL certificate. When you access the vCloud Usage Meter Web interface over HTTPS for the first time, you are prompted to manually trust the self-signed certificate.

You can secure the connection to vCloud Usage Meter by replacing the vCloud Usage Meter self-signed certificate with a CA-signed SSL certificate.

To obtain a CA-signed certificate and private key, you must generate a certificate signing request that is passed to the certificate authority to generate the official certificate.

Prerequisites

- You can log in to the vCloud Usage Meter console as **usagemeter**.
- You can log in to the vCloud Usage Meter console as **root**.
- From the certificate authority, you obtained the `usagemeter.key` file that holds the private key and the `usagemeter.crt` file that holds the signed certificate. Both files must be in PEM format.

Procedure

- 1 Log in to the vCloud Usage Meter console as **usagemeter** and enable SSH on the appliance.

```
service sshd start
```

- 2 Copy the `usagemeter.key` and the `usagemeter.crt` files to the `tmp` folder on the vCloud Usage Meter console.

You can use a SCP software like WinSCP on Windows.

- 3 Enter the `conf` folder.

```
cd /opt/vmware/cloudusagemetering/conf
```

- 4 Create a `nginx/ssl` directory to store the private key and the signed certificate files.

```
mkdir nginx
```

```
mkdir nginx/ssl
```

- 5 Move the private key and certificate files from the `tmp` folder to the `nginx/ssl` folder.

```
mv /tmp/usagemeter.crt nginx/ssl
```

```
mv /tmp/usagemeter.key nginx/ssl
```

- 6 Configure restrictive permissions for both files.

```
chmod 600 nginx/ssl/*
```

- 7 Create a backup copy of the `nginx.conf` file.

```
cp nginx.conf nginx.conf.bak
```

8 Add the CA-signed certificates in the `nginx.conf` file.

- a Open the
- `nginx.conf`
- file for editing.

```
vi nginx.conf
```

- b To add the certificate and the private key, edit the following entries.

```
ssl_certificate nginx/ssl/usagemeter.crt
```

```
ssl_certificate_key nginx/ssl/usagemeter.key
```

- c Save the
- `nginx.conf`
- file.

```
:wq!
```

9 Reboot the vCloud Usage Meter appliance.

```
su root
```

Note If you cannot reboot as **root**, use the vSphere Client to reboot the vCloud Usage Meter appliance.

If the installation of the CA-signed SSL certificate on the vCloud Usage Meter appliance is successful, no security warning is displayed the next time you log in to the vCloud Usage Meter Web interface.

How do I access the vCloud Usage Meter Web interface

You log in to the vCloud Usage Meter Web interface to configure the appliance and to add vCenter Server instances for metering. To access the vCloud Usage Meter Web interface, you need the vCloud Usage Meter host name or IP address.

Prerequisites

The vCloud Usage Meter appliance must be powered on.

Procedure

- 1 Open a Web browser and enter the URL for your vCloud Usage Meter instance: **`https://vcloud_usage_meter_ip_address`**.
- 2 Log in as **usagemeter** with the password configured during the deployment of the vCloud Usage Meter appliance.

What to do next

If you log in to the web interface for the first time, you must follow the **Usage Meter Initialization** wizard prompts.

Accessing the vCloud Usage Meter Web interface for the first time

If you are accessing the vCloud Usage Meter Web interface for the first time, you must configure the initial vCloud Usage Meter web interface wizard.

The **Usage Meter Initialization** wizard guides you through the steps for registering your vCloud Usage Meter instances with VMware Cloud.

Procedure

- 1 On the **Welcome** page, accept the term and conditions for automatic reporting of product consumption data to VMware and click **Next**.

By default, the check box for terms and conditions is selected.

- 2 On the **Network Connectivity** page, select the network connection type between the vCloud Usage Meter appliance and the Internet.

If you configure a network proxy server, you must provide the network proxy server IP address or host name and credentials.

- 3 On the **Summary** page, register the vCloud Usage Meter appliance for automatic reporting of product consumption data.

- a Register the vCloud Usage Meter instance in Commerce Portal. For information, see *How do I register Usage Meter instances for automatic reporting of Rental contracts* in the [Commerce Portal](#) documentation.
- b If you have not already signed up for vCloud Usage Insight, request an invitation to on-board. For information, see the [Cloud Provider Metering](#) page.
- c Click **Check registration**.

If the registration is successful, you receive a `Congratulations! You have connected your on-prem Usage Meter to your vCloud Usage Insight. message back.`

- 4 Click **Finish**.

How do I set up a proxy server

To report usage data to vCloud Usage Insight, vCloud Usage Meter requires a connection to the Internet. To establish a connection between vCloud Usage Meter and the Internet, you must configure a proxy server.

The first time you log in to the vCloud Usage Insight Web interface, a pop-up window to configure the proxy server displays. However, you can configure the proxy settings later.

Procedure

- 1 In the main menu bar of the vCloud Usage Meter Web interface, select **Settings > Network Connectivity**.

- 2 On the **Network Connectivity** page, select the proxy connection type.
- 3 Enter the IP address or the host name of the network proxy server in **Proxy Server** text box.
- 4 Enter the port number in the text box next to the IP address of the network proxy server.
The port number value must be a number between 0 and 65535.
- 5 Enter the user name and password.
- 6 Click **Save**.

You receive a `Network Connectivity settings saved.` message after the settings are correctly populated and saved.

Upgrading vCloud Usage Meter

4

You can install vCloud Usage Meter 4.2 as an in-place upgrade on top of vCloud Usage Meter 4.1.x or as a new appliance on top of vCloud Usage Meter 3.6.x. After you deploy the vCloud Usage Meter 4.2 appliance, you can optionally migrate the product configuration data from the source vCloud Usage Meter appliance to the target vCloud Usage Meter 4.2 appliance.

If you migrate from vCloud Usage Meter 3.6.x, you must accept the legal agreement that is displayed after you complete the migration to vCloud Usage Meter 4.2.

If you want to run in parallel both old and new appliances for a full reporting period, in Commerce Portal, set the vCloud Usage Meter 4.2 instance to **Test** mode. The product consumption data from the vCloud Usage Meter 4.2 instances is still collected, aggregated, and made available for reference to you.

Then if you want to enable vCloud Usage Meter 4.2 for reporting, in Commerce Portal, update the mode of the vCloud Usage Meter 4.2 instance from **Test** to **Production**, and shut down and back up the old vCloud Usage Meter appliance.

VMware Cloud Provider Program stipulates that Service Providers keep the product consumption data for 24 months going back from the current month.

To upgrade the vCloud Usage Meter appliance, you must install only the official vCloud Usage Meter updates provided by VMware.

This chapter includes the following topics:

- [In-Place upgrade of vCloud Usage Meter](#)
- [How do I migrate product configuration data to vCloud Usage Meter 4.2](#)

In-Place upgrade of vCloud Usage Meter

You can install vCloud Usage Meter 4.2 as an in-place upgrade on top of vCloud Usage Meter 4.1.x.

Prerequisites

- Back up or take a snapshot of the source vCloud Usage Meter appliance that you want to upgrade.
- You must enable SSH on the source vCloud Usage Meter 4.1.x appliance.

- You must have a password to log in to the vCloud Usage Meter console as **root**.

Procedure

- 1 Locally on your computer, download the `ums-system-upgrade.shar` file.
- 2 Copy the upgrade `ums-system-upgrade.shar` file to a folder in the vCloud Usage Meter 4.1.x console.

You can use a SCP software like WinSCP on Windows.

- 3 Log in to the vCloud Usage Meter 4.1.x console as **root**.
- 4 To install the `shar` file, run the command.

```
bash ums-system-upgrade.shar
```

After the upgrade completes, the system generates a `cloudusagemetering-old` folder for the vCloud Usage Meter 4.1.x installation backup. A newly created `cloudusagemetering` folder points to the upgraded vCloud Usage Meter installation.

- 5 Verify that the vCloud Usage Meter services are up and running.
 - a Enter the `/opt/vmware/cloudusagemetering` directory.

```
cd /opt/vmware/cloudusagemetering
```

- b Verify the status of the vCloud Usage Meter services.

```
./scripts/status.sh
```

If the services are running, you receive a `Running` status back.

Important

If the verification fails with an `Offline` error message, restore the vCloud Usage Meter appliance from the latest backup or snapshot, and repeat steps 1 through 5.

- 6 Stop SSH by running the command:

```
service sshd stop
```

What to do next

Important After the in-place upgrade, in the vCloud Usage Meter Web interface, you must manually accept the certificates for all metered product servers.

How do I migrate product configuration data to vCloud Usage Meter 4.2

You can migrate the product configuration data from your source vCloud Usage Meter appliance to your vCloud Usage Meter 4.2 appliance.

Prerequisites

- Back up or take a snapshot of the source vCloud Usage Meter appliance.
- You must have the TCP host name or IP address and the *usgmtr* user password of the source vCloud Usage Meter appliance.
- Deploy vCloud Usage Meter 4.2 as a new appliance.

Procedure

- 1 Log in to the source vCloud Usage Meter console as **root**.
- 2 Start the SSHD service in the source vCloud Usage Meter appliance by running the following command.

```
service sshd start
```

- 3 Log in to the target vCloud Usage Meter console as **usagemeter**.
- 4 Start the SSHD service in the target vCloud Usage Meter appliance by running the following command.

```
su root service sshd start
```

- 5 To migrate the source product configuration data to the target vCloud Usage Meter 4.2 appliance, run the command.

```
migrateum hostname
```

Here, *hostname* is the TCP host name or IP address of the source vCloud Usage Meter appliance from which you are migrating the vCenter Server configuration data.

The `migrateum` command uses SSH and Secure copy protocol to export the database and keystore files from the source system and copy it to vCloud Usage Meter 4.2.

- a Confirm that you want to migrate vCloud Usage Meter data.

You must enter the *usgmtr* password of the source vCloud Usage Meter appliance and confirm that you want to proceed with the data migration.

- 6 In the source vCloud Usage Meter console, stop the `sshd` service by running the following command.

```
service sshd stop
```


- 7 In the target vCloud Usage Meter console, disable the `sshd` service by running the following command.

```
service sshd stop
```

Results

The login credentials for the vCloud Usage Meter 4.2 Web interface are the **usagemeter** ones, that you set during the deployment of vCloud Usage Meter 4.2.

Important You can run the `migrateum` command only once.

To ensure that vCloud Usage Meter 4.2 is working correctly, run the new appliance in parallel with the source appliance for at least two months.

What to do next

If you want to retrieve additional certificates and validate the product connectivity, in the main menu bar of the vCloud Usage Meter Web interface, click **Products** and click **Edit** and **Save** for each product.

If you have vCenter Server instances that use an external Platform Service Controller, enter the additional Platform Service Controller information in vCloud Usage Meter. For more information about configuring Platform Service Controller, see [How do I add a vCenter Server instance for metering](#).

What else can I do with vCloud Usage Meter

5

You use vCloud Usage Meter to meter and generate reports for the usage of products that are part of the VMware Cloud Provider Program.

To...	See...
Change the vCloud Usage Meter logging level	How do I change vCloud Usage Meter logging level
Manage vCloud Usage Meter accounts	Managing vCloud Usage Meter accounts
Manage the metering of vCloud Usage Meter	Manage the metering in vCloud Usage Meter